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Department of  
Agriculture



NRCS

Natural  
Resources  
Conservation  
Service

In cooperation with  
Colorado Agricultural  
Experiment Station, the  
Spanish Peaks-Purgatoire  
River Conservation District,  
the Branson-Trinchera  
Conservation District, the  
United States Forest  
Service, and the state of  
Colorado

# Soil Survey of Las Animas County Area, Colorado, parts of Huerfano and Las Animas Counties







# How To Use This Soil Survey

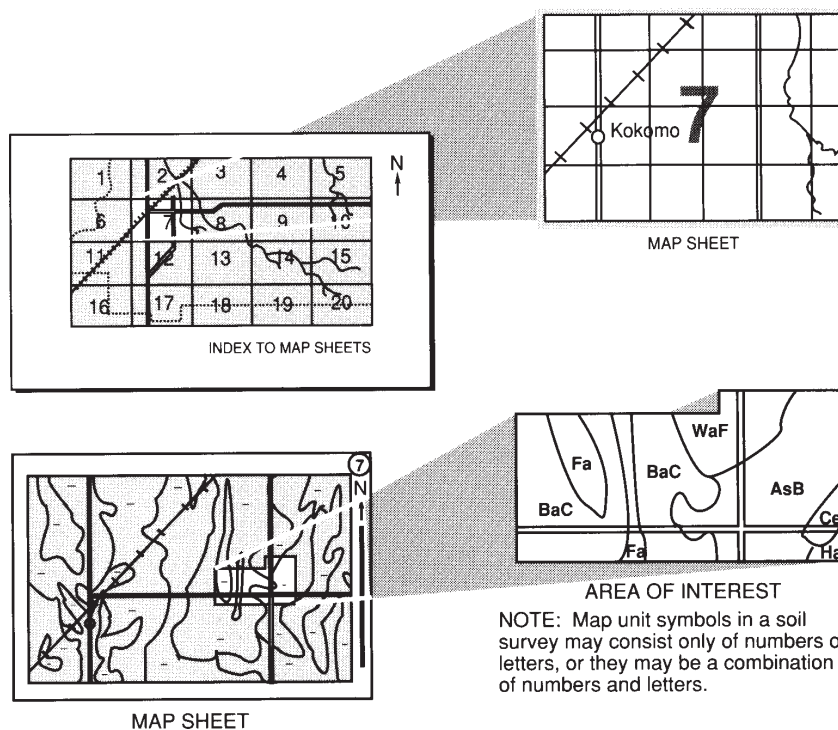
## Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.





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This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2005. Soil names and descriptions were approved in 2007. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2005. This survey was made cooperatively by the Natural Resources Conservation Service and the Colorado Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Spanish Peaks-Purgatoire River Conservation District and the Branson-Trinchera Conservation District.

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**Cover:** In the foreground is irrigated grass-alfalfa hay approximately three miles northeast of Trinidad. Fishers Peak, an important landmark in Las Animas County, is in the background.

*Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at <http://www.nrcs.usda.gov>.*

# Contents

---

<b>How To Use This Soil Survey</b> .....	3
<b>Foreword</b> .....	13
<b>Soil Survey of Las Animas County Area</b> .....	15
General Nature of the County Area .....	15
History and Development .....	15
Natural Resources .....	18
Physiography, Drainage, and Relief .....	18
Geology .....	19
Climate .....	22
How This Survey Was Made .....	23
<b>Detailed Soil Map Units</b> .....	25
AA—Ayon-Apache complex, 1 to 9 percent slopes .....	26
AC—Ayon-Capulin complex, 3 to 25 percent slopes .....	28
AcC—Acantilado loam, 2 to 7 percent slopes .....	30
AED—Earthen Dam .....	32
AnB—Ascalon sandy loam, 0 to 3 percent slopes .....	32
Ap—Apache cobbly loam, 5 to 25 percent slopes, stony .....	34
AR—Calcidic Argiustolls-Rock outcrop complex, 40 to 60 percent slopes .....	35
AsB—Ascalon sandy loam, 0 to 3 percent slopes, overblown .....	37
AV—Aguilar-Beckton complex, 0 to 2 percent slopes .....	39
AvC—Aguilar silt loam, 2 to 5 percent slopes, gullied .....	41
AW—Allens Park-Wahatoya complex, 30 to 60 percent slopes .....	43
BaA—Baca silt loam, 0 to 3 percent slopes .....	45
BaB—Bacid silt loam, 1 to 5 percent slopes .....	47
BaC—Baca silt loam, 3 to 5 percent slopes, cool .....	48
BcA—Baca silt loam, 0 to 3 percent slopes, cool .....	50
Bk—Fallriver extremely stony sandy loam, 30 to 60 percent slopes .....	51
BnA—Bacid silty clay loam, 0 to 2 percent slopes .....	53
BT—Barela-Raton complex, 1 to 8 percent slopes .....	54
BwA—Bloom silty clay loam, 0 to 2 percent slopes, occasionally flooded .....	57
Bx—Boxcanyon silt loam, 0 to 3 percent slopes .....	58
CaD—Razor silty clay, 4 to 12 percent slopes .....	60
CC—Chacuaco-Capulin loams, 1 to 4 percent slopes .....	62
CD—Chacuaco-Dalero complex, 2 to 7 percent slopes .....	64
Co—Collegiate loam, 1 to 4 percent slopes .....	65
CpA—Calemore clay loam, 0 to 2 percent slopes .....	67
CpB—Calemore silt loam, 0 to 3 percent slopes .....	68
CpC—Capulin loam, 1 to 6 percent slopes .....	70
CpT—Capulin-Torreón complex, 0 to 7 percent slopes .....	72
Ct—Breece sandy loam, 5 to 15 percent slopes .....	74
CwC—Cumulic Cryaquolls, clay, 2 to 5 percent slopes .....	75
DaE—Dalero-Rock outcrop complex, 3 to 25 percent slopes .....	76
De—Davtone loam, 3 to 9 percent slopes .....	78
DFV—Fuera-Dargol-Vamer complex, 10 to 45 percent slopes .....	79
DH—Davtone-Histic Cryaquolls complex, 2 to 5 percent slopes .....	82



---

Dm—Demayo very cobbly clay loam, 10 to 30 percent slopes, stony .....	85
Ds—Des Moines-Rock outcrop complex, 15 to 50 percent slopes .....	86
Dt—Davtone loam, 5 to 20 percent slopes .....	88
Dv—Feterita silt loam, 0 to 2 percent slopes .....	89
Ec—Eguaje-Demayo complex, 1 to 12 percent slopes, stony .....	91
EL—Ellicott-Las Animas complex, 0 to 2 percent slopes, occasionally flooded ...	93
ES—Embargo-Schwacheim complex, 1 to 9 percent slopes, stony .....	95
FcB—Wapiti clay loam, 0 to 3 percent slopes .....	97
FcC—Fort loam, 3 to 5 percent slopes .....	99
FcD—Fort sandy loam, 1 to 7 percent slopes .....	101
Fp—Fishers very cobbly loam, 15 to 45 percent slopes, very stony .....	102
FtC—Olneist loam, 1 to 6 percent slopes .....	104
FuD—Bandarito clay loam, 3 to 9 percent slopes .....	105
FuE—Bandarito clay loam, 9 to 18 percent slopes .....	107
FW—Bandarito-Fishers complex, 5 to 20 percent slopes, stony .....	108
FyB—Furia clay loam, 1 to 3 percent slopes .....	111
GA—Gulnare-Allens Park complex, 5 to 35 percent slopes .....	112
GC—Groomer-Cucharas complex, 5 to 35 percent slopes .....	115
GgB—Glenberg fine sandy loam, 0 to 3 percent slopes, occasionally flooded ..	117
GmE—Aquic Dystrocrypts .....	119
Gn—Angostura very stony loam, 20 to 65 percent slopes .....	120
GP—Gravel Pits .....	122
GR—Gulnare-Rock outcrop complex, 15 to 50 percent slopes, very stony .....	123
Hn—Hoehne fine sandy loam, 0 to 2 percent slopes, occasionally flooded .....	125
HvA—Haversid silt loam, 0 to 3 percent slopes .....	126
HyD—Humbarsprings gravelly loam, 3 to 12 percent slopes .....	128
K2D—Kimera-Chicosa complex, 4 to 12 percent slopes .....	129
KI—Kandrix-Chicosa complex, 3 to 9 percent slopes .....	131
Km—Kimera loam, 1 to 5 percent slopes .....	133
KmC—Wilid-Kimera complex, 2 to 9 percent slopes .....	135
KO—Kimera-Oterodry fine sandy loams, 2 to 7 percent slopes .....	137
Kw—Kandrix loam, 1 to 6 percent slopes .....	139
KwC—Kandrix-Wiley complex, 1 to 6 percent slopes .....	141
La—Lanola channery loam, 3 to 25 percent slopes .....	143
Lb—La Brier silty clay loam, 0 to 3 percent slopes .....	144
Ld—Leadville cobbly sandy loam, 5 to 40 percent slopes .....	146
LG—Manzanst-Ritoazul complex, 4 to 12 percent slopes .....	147
LH—Leadville-Howlett complex, 5 to 40 percent slopes, stony .....	149
Lo—La Brier-Rock outcrop complex, 0 to 9 percent slopes .....	151
LoA—Limon silty clay loam, 0 to 1 percent slopes .....	153
LR—Fallriver-Rubble land complex, 40 to 80 percent slopes .....	155
LRT—Lorencito-Rombo-Sarcillo complex, 25 to 65 percent slopes .....	157
Ls—Las Animas loam, 0 to 1 percent slopes .....	159
LST—Lorencito-Sarcillo-Trujillo complex, 3 to 25 percent slopes .....	161
Lt—Littlepine sandy loam, 3 to 15 percent slopes .....	163

---

LvD—Lorencito clay loam, 3 to 20 percent slopes .....	165
LW—Littlepine-Wahatoya complex, 15 to 40 percent slopes .....	167
MaB—Mauricanyon loam, 0 to 3 percent slopes, warm .....	169
MaW—Mauricanyon clay loam, 0 to 2 percent slopes, wet .....	170
MD—Mine Dumps .....	172
Mf—Moran Family, 5 to 40 percent slopes .....	173
MG—Tercio-Graneros complex, 15 to 40 percent slopes .....	174
MGR—Midway-Ritoazul-Rock outcrop complex, 1 to 15 percent slopes .....	176
MI—Minqwet-Wiley silt loams, 1 to 4 percent slopes .....	178
MIK—Midway-Chicosa complex, 5 to 35 percent slopes .....	181
MnA—Manzanst silty clay loam, 0 to 1 percent slopes .....	183
MnB—Manzanst silty clay loam, 1 to 3 percent slopes .....	184
MnW—Aquic Haplustalfs, 0 to 3 percent slopes .....	186
MoA—Mauricanyon loam, 0 to 2 percent slopes .....	187
MoB—Mauricanyon loam, 0 to 2 percent slopes, dry .....	189
MoR—Mion-Rock outcrop complex, 10 to 75 percent slopes .....	191
MP—Midway-Razor-Rock outcrop Complex, 1 to 15 Percent slopes .....	192
MR—Mirror-Rock outcrop complex, 40 to 70 percent slopes .....	194
MvC—Manvel silt loam, 1 to 5 percent slopes .....	196
MyD—Midway clay loam, 3 to 15 percent slopes, gullied .....	197
MzA—Manzanola silty clay loam, 0 to 1 percent slopes .....	199
MzB—Manzanola silty clay loam, 1 to 4 percent slopes .....	200
NM—Nopurg-Mitotes complex, 10 to 40 percent slopes, stony .....	202
OeC—Otero sandy loam, 1 to 6 percent slopes .....	204
OtD—Oterodry fine sandy loam, 1 to 9 percent slopes .....	206
OyB—Olnest sandy loam, 0 to 3 percent slopes .....	208
OyC—Olnest sandy loam, 3 to 7 percent slopes .....	209
PeD—Penrose loam, 1 to 9 percent slopes .....	211
PeF—Penrose-Midway-Rock outcrop complex, 10 to 40 percent slopes .....	212
PM—Penrose-Minnequa complex, 2 to 15 percent slopes .....	215
PnD—Penrose loam, moist, 2 to 15 percent slopes .....	217
RaB—Ravine silty clay loam, 1 to 5 percent slopes .....	219
RaC—Ritoazul silty clay, 0 to 4 percent slopes .....	221
RB—Raton-Barela complex, 3 to 15 percent slopes, very stony .....	222
Rc—Raku silt loam, 0 to 2 percent slopes .....	224
RcA—Raku silt clay loam, 0 to 1 percent slopes .....	226
Rd—Romound silt loam, 1 to 5 percent slopes .....	227
RF—Rock outcrop-Rubble land complex, 45 to 90 percent slopes .....	229
Rt—Raton cobbly loam, 3 to 20 percent slopes, very stony .....	230
RyC—Ryegate sandy loam, 1 to 8 percent slopes .....	231
RzD—Rizozo-Rock outcrop complex, moist, 3 to 20 percent slopes .....	233
Sc—Schwacheim gravelly silt loam, 3 to 20 percent slopes, very stony .....	235
ScR—Schwacheim-Rock outcrop complex, 5 to 30 percent slopes, extremely stony .....	236
SG—Ovmesa-Romound complex, 2 to 30 percent slopes .....	238



---

ShD—Shingle-Penrose complex, 2 to 15 percent slopes .....	240
SL—Standard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony .....	243
SM—Schamber-Midway complex, 3 to 25 percent slopes .....	245
Sn—Sitcan fine sandy loam, 1 to 4 percent slopes .....	247
SR—Saruche-Rombo-Rock outcrop complex, 25 to 50 percent slopes .....	248
Sw—Molinaro loam, 2 to 12 percent slopes .....	251
TbA—Trementina silt loam, 0 to 2 percent slopes .....	252
TeE—Tecolote very cobbly sandy loam, 5 to 15 percent slopes, very stony .....	253
TF—Torreon-Fuera complex, 9 to 30 percent slopes .....	255
TgD—Trujillo sandy loam, 3 to 9 percent slopes .....	257
TgE—Trujillo sandy loam, 9 to 25 percent slopes .....	258
TL—Torreon-Lorencito complex, 8 to 35 percent slopes .....	260
TmD—Trujillo loam, 3 to 9 percent slopes .....	262
TnA—Trementina silty clay loam, 0 to 2 percent slopes, cool .....	263
TnB—Trementina silt loam, 0 to 2 percent slopes, dry .....	264
To—Torreon silt loam, 1 to 4 percent slopes .....	266
ToD—Torreon clay loam, 3 to 9 percent slopes .....	267
ToE—Torreon soils complex, 5 to 20 percent slopes .....	269
TsD—Travessilla-Rock outcrop complex, 1 to 9 percent slopes .....	271
TsE—Torreon stony clay loam, 5 to 20 percent slopes .....	272
TsF—Travessilla-Rock outcrop complex, 25 to 70 percent slopes .....	274
Us—Aridic Calciustolls, 15 to 35 percent slopes .....	276
VB—Vona loamy sand, 0 to 3 percent slopes, overblown .....	277
VD—Dargol-Stout-Vamer complex, 1 to 9 percent slopes .....	279
VnC—Vona sandy loam, 3 to 6 percent slopes .....	282
VoB—Vona sandy loam, 0 to 3 percent slopes .....	284
VoC—Vonid sandy loam, 3 to 7 percent slopes .....	285
VT—Villedry-Travessilla complex, 1 to 8 percent slopes .....	287
VtC—Valent fine sand, 2 to 8 percent slopes .....	289
W—Water .....	291
Wa—Wapiti loam, 0 to 3 percent slopes .....	291
WC—Plughat-Villegreen complex, 1 to 4 percent slopes .....	293
WeB—Wiley silt loam, 0 to 3 percent slopes .....	296
WM—Minnequa-Wilid silt loams, 1 to 6 percent slopes .....	297
WrB—Wilid silty clay loam, 1 to 3 percent slopes .....	300
WV—Almagre-Villedry silt loams, 1 to 4 percent slopes .....	301
WyB—Wilid silt loam, 0 to 3 percent slopes .....	304
YaA—Yattle fine sandy loam, 0 to 1 percent slopes .....	305
YaC—Yattle fine sandy loam, 1 to 6 percent slopes .....	307
ZR—Rizozo-Rock outcrop complex, 3 to 20 percent slopes .....	308
ZRF—Rizozo-Rock outcrop complex, 20 to 50 percent slopes .....	310
<b>Use and Management of the Soils .....</b>	<b>313</b>
Interpretive Ratings .....	313
Rating Class Terms .....	313

---

Numerical Ratings .....	313
Crops and Pasture .....	314
Yields per Acre .....	314
Land Capability Classification .....	315
Prime Farmland .....	316
Rangeland of the Las Animas County Soil Survey Area .....	317
Forestland Management and Productivity .....	322
Windbreaks and Environmental Plantings .....	322
Recreation .....	322
Hydric Soils .....	324
Engineering .....	326
Building Site Development .....	326
Sanitary Facilities .....	328
Construction Materials .....	330
Water Management .....	331
<b>Soil Properties</b> .....	333
Engineering Index Properties .....	333
Physical Properties .....	334
Chemical Properties .....	337
Physical and Chemical Analyses of Selected Soils .....	338
Soil Features .....	340
Water Features .....	341
<b>Classification of the Soils</b> .....	343
Soil Series and Their Morphology .....	343
Acantilado Series .....	344
Aguilar Series .....	346
Allens Park Series .....	349
Almagre Series .....	352
Angostura Series .....	354
Apache Series .....	357
Aquic Dystrocryepts Taxon above family .....	358
Aquic Haplustalfs .....	360
Aridic Calciustolls Taxon above family .....	364
Ascalon Series .....	366
Ayon Series .....	368
Baca Series .....	371
Bacid Series .....	374
Bandarito Series .....	376
Barela Series .....	379
Beckton Series .....	381
Bloom Series .....	384
Boxcanyon Series .....	385
Breece Series .....	388
Calcidic Argiustolls Taxon above family .....	389
Calemore Series .....	391



---

Capulin Series .....	394
Chacuaco Series .....	396
Chicosa Series .....	397
Collegiate Series .....	399
Cucharas Series .....	401
Cumulic Haplocryolls .....	403
Dalero Series .....	404
Dargol Series .....	406
Davtone Series .....	408
Demayo Series .....	410
Des Moines Series .....	411
Eguaje Series .....	413
Ellicott Series .....	415
Embargo Series .....	418
Fallriver Series .....	420
Feterita Series .....	422
Fishers Series .....	424
Fort Series .....	427
Fuera Series .....	429
Furia Series .....	431
Glenberg Series .....	433
Graneros Series .....	435
Groomer Series .....	437
Gulnare Series .....	439
Haversid Series .....	441
Histic Cryaquolls Taxon above family .....	442
Hoehne Series .....	444
Howlett Series .....	447
Humbar Springs Series .....	449
Kandrix Series .....	451
Kimera Series .....	453
La Brier Series .....	456
Lanola Series .....	458
Las Animas Series .....	460
Leadville Series .....	462
Limon Series .....	464
Littlepine Series .....	466
Lorencito Series .....	469
Manvel Series .....	470
Manzanola Series .....	472
Manzanst Series .....	474
Mauricanyon Series .....	476
Mauricanyon Series, Wet .....	478
Midway Series .....	481
Minnequa Series .....	482

---

Minqwet Series .....	484
Mion Series .....	486
Mirror Series .....	487
Mitotes Series .....	489
Molinaro Series .....	491
Moran Family .....	493
Nopurg Series .....	494
Olneest Series .....	496
Otero Series .....	498
Oterodry Series .....	500
Ovmesa Series .....	502
Penrose Series .....	504
Plughat Series .....	505
Raku Series .....	508
Raton Series .....	510
Ravine Series .....	512
Razor Series .....	514
Ritoazul Series .....	516
Rizozo Series .....	519
Rombo Series .....	521
Romound Series .....	523
Ryegate Series .....	525
Sarcillo Series .....	527
Saruche Series .....	529
Scandard Series .....	530
Schamber Series .....	532
Schwacheim Series .....	533
Shingle Series .....	535
Sitcan Series .....	536
Stout Series .....	539
Tecolote Series .....	540
Tercio Series .....	542
Torreon Series .....	545
Travessilla Series .....	547
Trementina Series .....	549
Trujillo Series .....	551
Valent Series .....	553
Vamer Series .....	554
Villedry Series .....	556
Villegreen Series .....	558
Vona Series .....	560
Vonid Series .....	563
Wahatoya Series .....	565
Wapiti Series .....	567
Wiley Series .....	570

---

Wilid Series .....	573
Yattle Series .....	575
<b>Formation of the Soils .....</b>	<b>577</b>
Soil-Forming Processes .....	577
Factors of Soil Formation .....	577
<b>References .....</b>	<b>583</b>
<b>Glossary .....</b>	<b>585</b>
<b>Tables .....</b>	<b>605</b>
Table 1.--Temperature and precipitation .....	607
Table 2.--Freeze dates in spring and fall .....	608
Table 3.--Growing season .....	609
Table 4.--Acreage and proportionate extent of the soils .....	610
Table 5.--Irrigated and nonirrigated yields by map unit .....	615
Table 6.--Prime and other important farmland .....	634
Table 7.--Ecological sites and characteristic native vegetation .....	637
Table 8.--Forestland productivity .....	733
Table 9.--Windbreaks and environmental plantings .....	741
Table 10.--Camp areas, picnic areas, and playgrounds .....	773
Table 11.--Paths, trails, and golf fairways .....	823
Table 12.--Hydric soils .....	862
Table 13.--Dwellings and small commercial buildings .....	864
Table 14.--Roads and streets, shallow excavations, and lawns and landscaping .....	905
Table 15.--Sewage disposal .....	955
Table 16.--Landfills .....	979
Table 17.--Source of gravel and sand .....	1021
Table 18.--Source of reclamation material, roadfill, and topsoil .....	1040
Table 19.--Ponds and embankments .....	1098
Table 20.--Engineering properties .....	1138
Table 21.--Physical soil properties .....	1213
Table 22.--Chemical soil properties .....	1266
Table 23.--Soil features .....	1319
Table 24.--Water features .....	1341
Table 25.--Taxonomic classification of the soils .....	1366

## Foreword

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This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.



Allen Green  
State Conservationist  
Natural Resources Conservation Service





# Soil Survey of Las Animas County Area, Colorado, Parts of Huerfano and Las Animas Counties

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By Lee A. Neve

Fieldwork by Felix Panlasigui, Randall Staples, Lee A. Neve, Bill Johnson, Ken Radek, Bruce McCullough, Tim Wheeler, and William Mendez.

United States Department of Agriculture, Natural Resources Conservation Service,  
in cooperation with  
Colorado Agricultural Experiment Station, the Spanish Peaks-Purgatoire River Conservation District, the Branson-Trinchera Conservation District, the United States Forest Service, and the State of Colorado

The survey area includes most of Las Animas County except for one area in the San Isabel National Forest in the northwest part of the county (fig. 1). It also includes a small area of Huerfano County on Cordova Pass. The survey area consists of mountains in the far western part of the county, foothills in the western third of the county, lava plateaus along the southern boundary, and plains in the eastern two-thirds of the county. The plains are dissected by steep canyons in the northeast part of the county. Elevation ranges from 4,400 to 13,500 feet.

The survey area includes about 3,032,800 acres, or about 4,739 square miles. In 2000, the total population of Las Animas County and the survey area was 15,000. Trinidad, the county seat, had a population of 9,100 within the city limits (U.S. Bureau of Census, 2000).

## General Nature of the County Area

The following paragraphs give general information about the Las Animas County Area. They describe history, and development, natural resources; physiography, drainage, and relief; and climate.

## History and Development

The area that is now Las Animas County was established in 1866 (Beshoar, 1990). The main tributary through that area was given the Spanish name Rio de Las Animas, meaning, *River of Lost Souls*. The river was later given the English equivalent, *Purgatoire* (Taylor, 1966).

Las Animas County was part of the hunting grounds of the Ute, Comanche, and Jicarilla Apache Indians when Spanish explorers first passed through the area. Trappers, traders, and settlers came through the area on the "Mountain Branch" of the Santa Fe Trail. The branch entered Las Animas county from the northeast and crossed the Purgatoire River near Trinidad. From this point, the trail turned south and followed Raton Creek over Raton Pass into New Mexico.

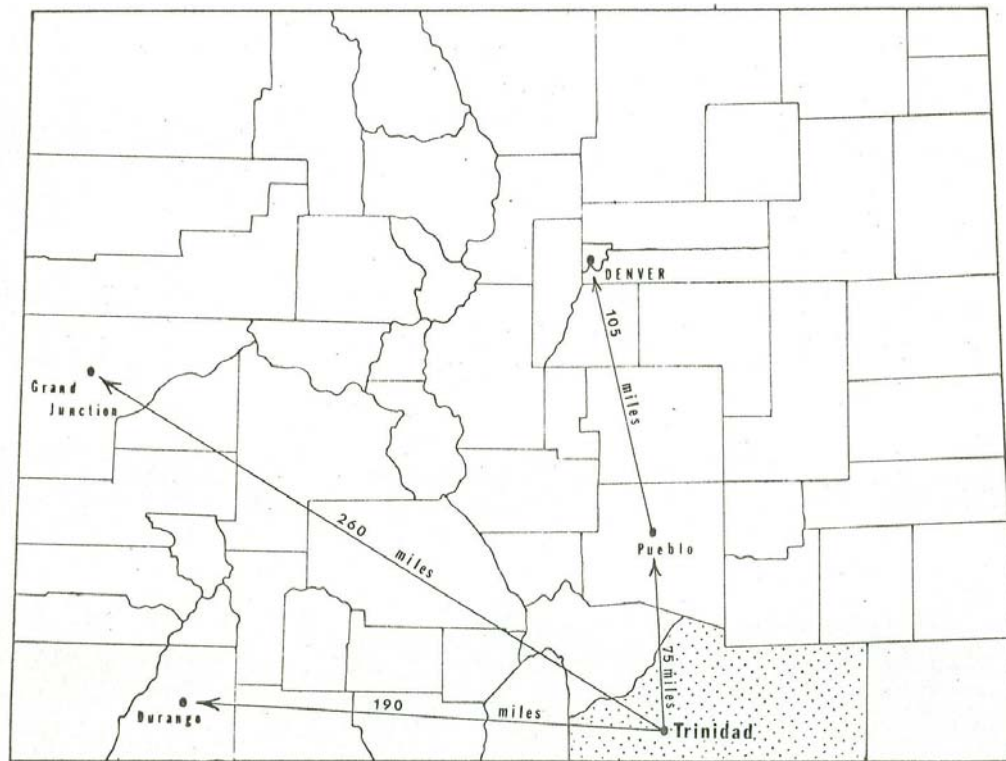


Figure 1.—Location of the survey area in Colorado.

The first settlement of Trinidad occurred in 1859 (Taylor, 1966). The area started to grow quickly, and by 1861 several irrigation ditches had been established to divert water from the Purgatoire River to irrigate cropland. Irrigating cropland and hayland continues to be an established agricultural practice in the area.

The Atchison, Topeka, and Santa Fe Railroad established a line from La Junta to Trinidad and continued over Raton Pass into New Mexico in 1879. The Denver and Rio Grande Railroad under the leadership of General Palmer reached within five miles of Trinidad near El Moro in 1876 (Wyckoff, 1999). A market for coal and agriculture, previously considered inaccessible, was created when the railroad lines were completed. This led the way to expansion of the coal mining industry and the production of coke in the late 1800s and early 1900s. In 1880 the Colorado Fuel and Iron company (CF&I) was established. In 1901, the CF&I Company secured part of the Maxwell land grant south of the Purgatoire River and west of Trinidad. In the next few years, large coal mining operations began in Primero, Tercio, and Weston (Scamehorn, 1976). Approximately 506,000 short tons of coal were mined in Las Animas county in 1887. In 1910, coal mining reached its peak with 5,548,000 short tons produced (George, 1917).

Since 1910, coal mining has steadily declined, primarily due to the production of natural gas and the cost of underground mining. In 1980, four active coal mines were present in Las Animas county, and by 2000 the coal industry had become extinct. Historical sites evident from past mining operations remain as monuments to the coal industry and the Area's history: the coke ovens of Cokedale, numerous foundations near coal town sites, slag piles, and the Ludlow Monument are examples.

Today, the production of beef and natural gas are the principal industries in the Las Animas county area. The production of natural gas in the form of coal bed methane has replaced the coal industry with over 100 wells drilled per year from the late 1990s



**Figure 2.—Abandoned coal mining camps are found throughout the foothills in the survey area.**

to 2005 in the foothills of western Las Animas County. Methane gas development and production continues today with several major companies involved.

The town of Trinidad was incorporated in 1876 (Taylor, 1966), just a few months before Colorado became a state. Trinidad has been the county seat since its incorporation. Surrounding towns and communities include Aguilar, Branson, Cokedale, El Moro, Kim, Segundo, Stonewall, and Weston.

The populations of Las Animas County and Trinidad declined along with the coal industry until the 1990s. The present population of Las Animas County is approximately 15,000, with around 9,100 residents in the city of Trinidad (U.S. Department of Commerce, Bureau of the Census, 2000).

Farming and ranching are the main agricultural enterprises in the county. Farming consists of the production of irrigated alfalfa and corn near along the Purgatoire River near Hoehne and near Model. Dryland winter wheat in a wheat-fallow rotation is found in the Kim area. Ranching is the primary agricultural commodity in the plains and foothills. In Las Animas County, approximately 51,000 head of cattle and calves were part of ranching operations in 2006 (USDA, National Agriculture Statistics Service, 2007).

Las Animas County consists of nearly level plains in the eastern two-thirds of the county. Trinidad lies on the eastern edge of the foothills, which extend to the Sangre de Cristo mountain range at the western boundary of the county.

Interstate 25 ("I-25") is the north-south corridor along the front range of Colorado and extends from Raton Pass north through Trinidad to Walsenburg, Pueblo, and eventually to Denver. U.S. Highway 160 extends from Kim in the eastern plains to Trinidad. State Highway 350 follows the old Santa Fe Trail from La Junta to Trinidad. County roads are numerous throughout the area. In the foothills, they often follow major streams and drainages and are maintained with gravel surfaces.



## Natural Resources

Soil and native vegetation are the major natural resources in Las Animas County. About 75 percent of the county is rangeland or grazable woodland used for cattle production. About 1 percent of the county is irrigated cropland. Alfalfa is the primary crop.

Coal, natural gas, sand and gravel deposits, and wildlife are other natural resources in the county. Methane gas production and development is found in the Raton Formation primarily in the foothills west of I-25. It is a major contributor to the economy of Las Animas County. Areas of sand and gravel deposits are found on fan remnants bordering the foothills. The principal game animals include bear, elk, mule deer, turkey, mountain lion, and Rocky Mountain bighorn sheep. Contained within the county for recreation and wildlife are six state wildlife areas, U.S. Forest Service lands, and a Colorado State Park.



**Figure 3.—The Lake Dorothy State Wildlife Area is one of six state wildlife areas found in Las Animas County.**

## Physiography, Drainage, and Relief

Elevation in the survey area ranges from about 4,400 feet where the Purgatoire River exits Las Animas County into Otero County, to 13,500 feet near the top of the Sangre De Cristo Mountains.

Las Animas County is divided into five physiographic provinces. The plains areas of the county are in the central high plains and the Upper Arkansas Valley rolling plains provinces. The basalt mesas along the southern border are in the Pecos-Canadian plains and valleys province. The western third of the county is in the southern Rocky Mountains and the southern Rocky Mountain foothills provinces (Natural Resources Conservation Service, Agriculture Handbook 296, 2006).

The plains consist of broad, nearly level to gently rolling grasslands divided by steep canyons. They are bounded by the foothills to the west and by the basalt mesas to the south. Several large tributaries flow to the east or northeast through the plains. These include the Purgatoire and Apishapa Rivers, and the San Francisco, Frijole, Chacuaco, and Two Buttes Creeks.

The foothills province is an extensive plateau with steep hills, fans, and valleys west of I-25 to the base of the Sangre De Cristo Mountain range. Major tributaries dissecting the foothills are primarily the Purgatoire and Apishapa Rivers. The Longs, Lorencito, Sarcillo, and Wet Canyons drain into the Purgatoire River.

The Sangre De Cristo Mountains are located along the western border of the survey area. They consist of steep to very steep mountains, fans, hills, and valleys. Major drainages in the mountains include the Purgatoire River; Johnson, Duling, Whiskey, and Cherry Creeks; and the Little Canadian River.

The basalt mesas consist of large lava plateaus that extend from Raton Pass east to the Baca County line. They are bounded by the plains to the north and the foothills to the west. Major drainages include the Cobert, Jesus, and Furnish Canyons, and the Dry Cimarron Creek.

## Geology

By Lee A. Neve and Al Albin

Four distinct landscapes in Las Animas County can be distinguished by the geologic terrains that underlie them. These landscapes are the *plains*, *foothills*, *mountains* and *lava plateaus*. The plains are underlain by Pierre Shale, Niobrara Formation, Carlisle Shale, Dakota Sandstone sedimentary deposits, and surficial deposits of Dune Sand. The foothills are dominated by the Raton and Poison Canyon Formations. The Sangre de Cristo Mountains are dominated by the Sangre de Cristo Formation, with a core of granodiorite, diorite, and granite (Jenny, 1941).

The Pierre Shale, Niobrara Formation, and Carlisle Shale consist of sediments deposited in a shallow inland sea during the Upper Cretaceous Period. Pierre Shale is gray, clayey shale. Midway and Razor soils formed in material weathered from Pierre Shale. Niobrara Formation is white, yellow, or gray limestone. Penrose and Minnequa soils formed in material weathered from the Niobrara Formation. Carlisle Shale is dark gray to brown shale. Shingle and Marvel soils formed in materials weathered from Carlisle Shale.

Dune Sands are eolian deposits of Pleistocene age. Dune Sands are light colored sand and coarse silt. Ascalon, Otero, Vona, and Valent soils formed on the Dune Sands.

The Dakota Sandstone consists primarily of noncalcareous brown or buff sandstone deposited during the Lower Cretaceous Period. Travessilla, Dalerose, Villegreen, and Ryegate soils formed in materials weathered from the Dakota Sandstone. The Dakota Sandstone is very extensive, covering over a third of Las Animas County.

Small areas of Morrison and Ralston Creek Formations, and the Dockum Group are found in the northeast and southeast part of the county. The Morrison and Ralston Creek Formations consist of reddish brown sandstone, white gypsum, and pink alabaster deposited during the Upper Jurassic Period. Rizozo, Ovmesa, and Romound soils formed from materials weathered from the Morrison and Ralston Creek Formations. The Dockum Group consists of red to reddish-brown fine grained sandstone deposited during the Lower Jurassic Period. Rizozo, Yattle, and Acantilado soils formed in materials weathered from the Dockum Group (U.S. Department of the Interior, Geologic Survey, Map I-560, 1968).

The Raton Formation consists of shale, siltstone, coal, and sandstone deposited during the Upper Cretaceous Period. The Raton Formation is found west of I-25 and

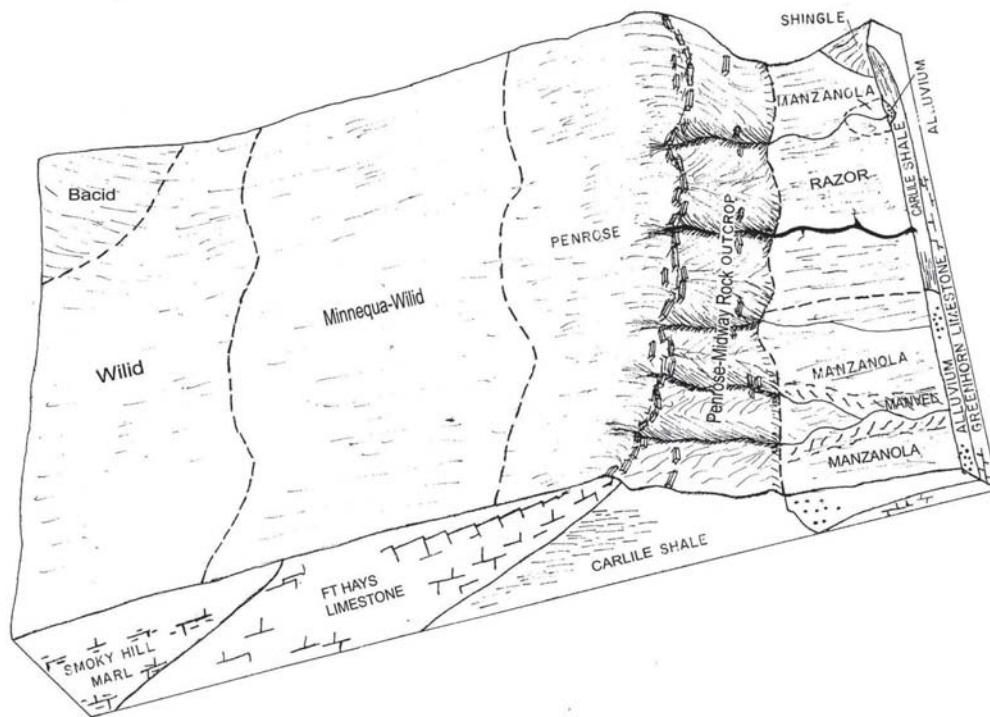
covers two-thirds of the foothills. Dargol, Fuera, Vamer, Saruche, Rombo, Lorencito, and Sarcillo soils were formed in materials weathered from the Raton Formation. This formation has significant economic importance, containing major coal seams and methane gas.

The Poison Canyon Formation consists of buff or yellow arkosic sandstone, siltstone, and shale deposited during Paleocene time. It is found in the northern half of the foothills. Sandstone dominates this formation and is highly weathered in many areas. Gulnare, Allens Park, Wahatoya, and Trujillo soils formed in materials weathered from the Poison Canyon Formation.

The Sangre de Cristo Formation consists of sediments that cover the east slope of the Sangre de Cristo Mountain range. The Sangre de Cristo Formation consists primarily of red sandstone, conglomerate, and siltstone that were deposited during the Permian Period. Davtone, Howlett, Leadville, Mitotes, and Nopurg soils formed in materials weathered from the Sangre de Cristo Formation (Chronic and Williams, 2002).

The core of the Sangre De Cristo Mountains is exposed in the upper third of the mountain range. This core consists primarily of intrusive igneous rocks, diorite, granodiorite, and granite of Precambrian age. Mirror, Moran, and Angostura soils formed in materials weathered from the diorite, granodiorite, and granite.

The Lava Plateaus are found on the southern border of the county from Raton Pass east to the Baca County line. Lava Plateaus consist of dark, fine-grained basalt with small amounts of scoria that erupted during Miocene time. Apache, Ayon, Barela, Capulin, Demayo, Embargo, Torreon, and Schwacheim soils formed from materials weathered from the basalt (U.S. Department of the Interior, U.S. Geological Survey, Map I-558, 1969 and Map I-560, 1968).



**Figure 4.—Soil types formed from the Niobrara Formation in the plains. Penrose and Midway soils are typically shallow in depth and are located on the steep ridge and scarps formed from the Carlile Shale and Fort Hays Limestone. Razor and Manzanola soils formed on pediments and fans below the ridge and are typically moderately deep to very deep. Minnequa and Wild soils formed on the uphill side of the scarp from residuum and loess. Soil depths increase with distance away from the scarp.**



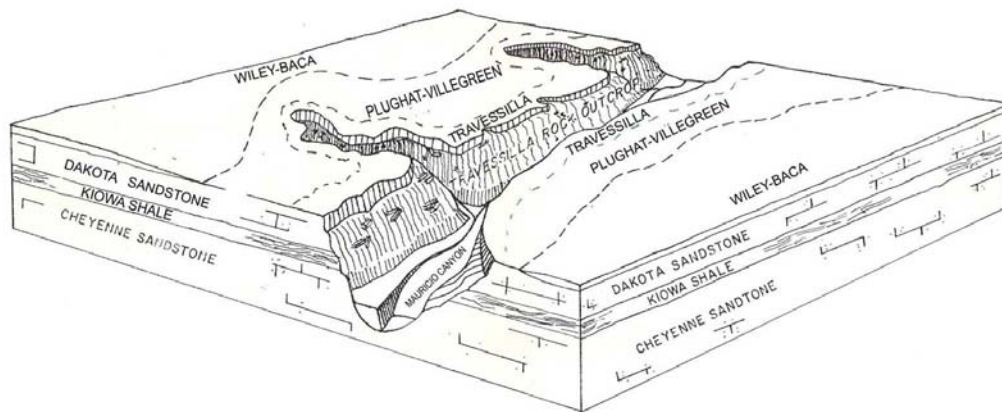


Figure 5.—Soil catena in the Dakota Formation. The Travessilla series is on steep canyons and scarps of adjacent flats and are dominantly shallow in depth. The Plughat and Villegreen soils are deep and moderately deep to sandstone, with increased depths with distance away from the canyon and scarp. The Wiley and Baca series are typically very deep and formed dominantly from loess.

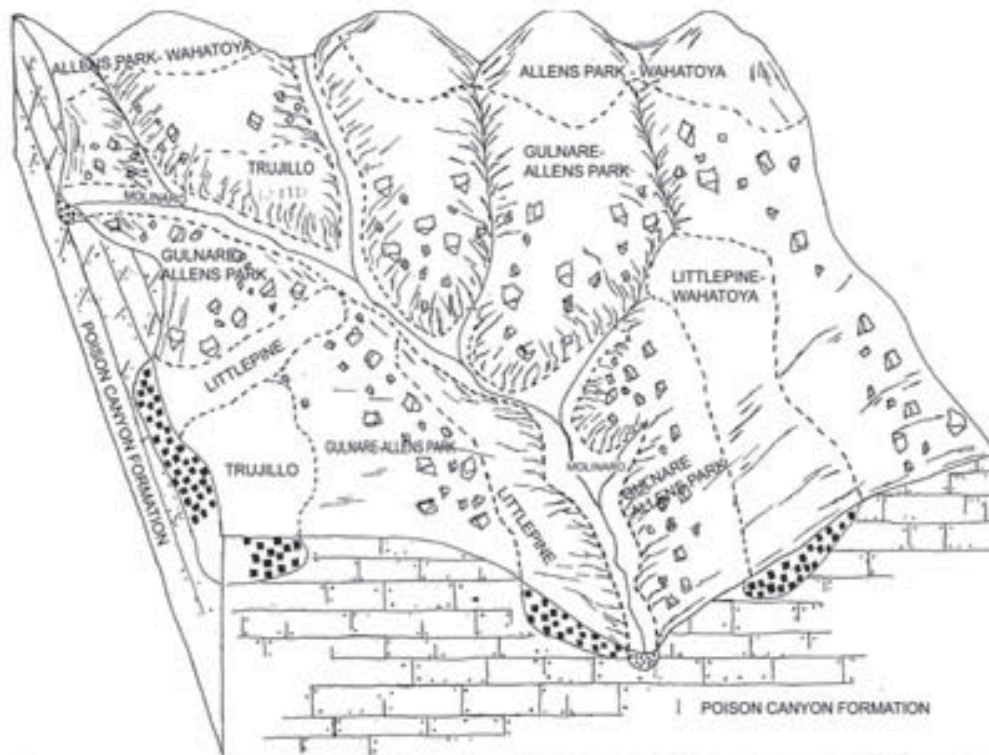
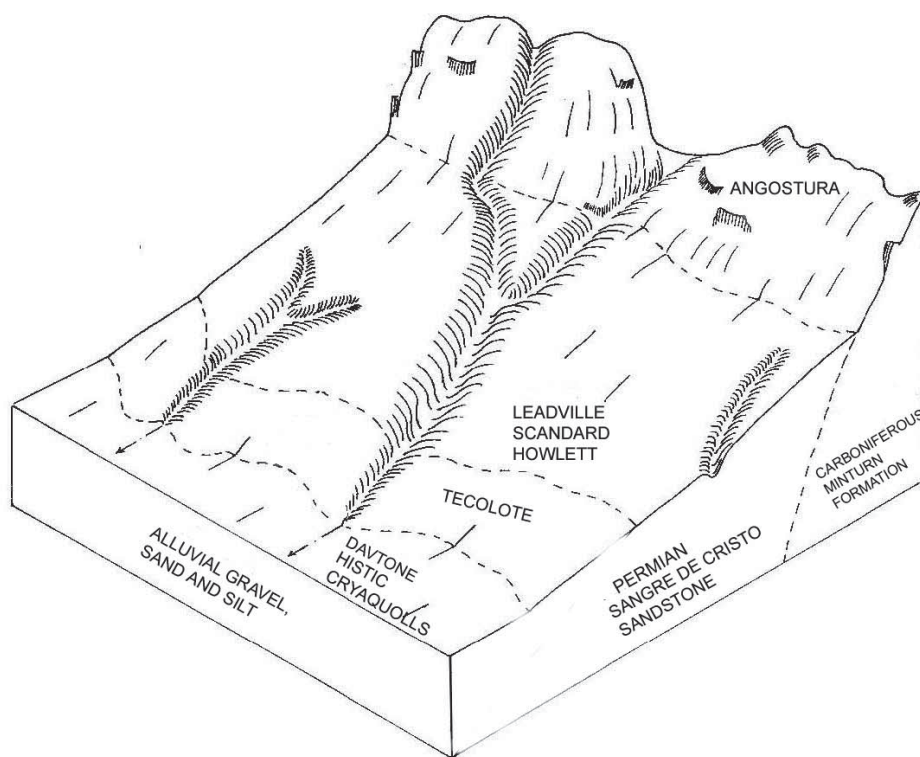


Figure 6.—Relationship of soils found on the Poison Canyon Formation. The Allens Park-Wahatoya complex is at the upper elevations of hills. These soils have dense conifers and are typically moderately deep to sandstone. The Gulnare-Allens Park complex is found at somewhat lower elevations with stands of Ponderosa Pine. These soils range from shallow to moderately deep. Trujillo and Littlepine soils are typically very deep and are on fans at the bases of hills. Molinero soils are on Terraces and drainageways at the bases of fans and are typically very deep with little soil development.



**Figure 7.—Catena of soils in the forested areas of the Sangre De Cristo Mountains. Angostura soils are very deep skeletal soils found at the upper elevations under subalpine fir and Engelmann's spruce. The Leadville, Scandard, and Howlett soils formed from the Sangre De Cristo Sandstone under Rocky Mountain Douglas fir and white fir immediately downslope. Soils are typically red and range from moderately deep to very deep. The Tecolote soil formed on bases of mountain slopes and fans, typically under ponderosa pine communities. They are red very deep skeletal soils. Davtone and Histic Cryaquolls are on lower slopes of fans at the base of the mountains. They are very deep and poorly to well drained.**

## Climate

Prepared by the Natural Resources Conservation Service National Water and Climate Center, Portland, Oregon.

Climate tables are created from data gathered at the climate station in Trinidad, Colorado. Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from the First Order station in Pueblo, Colorado.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Trinidad in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 35.1 degrees F and the average daily minimum temperature is 20.5 degrees. The lowest temperature on record, which occurred at Trinidad on January 12, 1963, is -32 degrees. In summer, the average temperature is 70.0 degrees and the average daily maximum temperature is 84.7 degrees. The highest temperature, which occurred at Trinidad on June 26, 1994, is 101 degrees.

*Growing degree days* are shown in Table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal

monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The *average annual total precipitation* is about 16.10 inches. Of this, about 10.3 inches, or 64 percent, usually falls in May through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 4.20 inches at Trinidad on August 11, 1981. Thunderstorms occur on about 47 days each year, and most occur in July.

The *average seasonal snowfall* is 45.4 inches. The greatest snow depth at any one time during the period of record was 16 inches recorded on February 4, 1964, but 49 inches was recorded on December 30, 2006. On an average, 21 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 14.0 inches recorded on March 11, 1977.

The *average relative humidity* in mid-afternoon is about 38 percent. Humidity is higher at night, and the average at dawn is about 74 percent. The sun shines 79 percent of the time in summer and 73 percent in winter. The prevailing wind is from the west. Average wind speed is highest, 10.3 miles per hour, in April.

## How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

This survey area was mapped at two levels of detail. At the more detailed level, map units are narrowly defined. Map unit boundaries were plotted and verified at closely spaced intervals. At the less detailed level, map units are broadly defined. Boundaries were plotted and verified at wider intervals. In the legend for the detailed soil maps, narrowly defined units are indicated by symbols in which the first letter is a capital and the second is lower case. For broadly defined unit, the first and second letters are capitals.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Acceptable joins between map units of Las Animas County and adjacent counties occur for those counties that are not out-of-date. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

## Detailed Soil Map Units

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The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown



on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Ascalon sandy loam, 0 to 3 percent slopes, overblown is a phase of the Ascalon series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Leadville-Howlett complex, 5 to 40 percent slopes, stony is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop-Rubble land complex, 45 to 90 percent slopes is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The *Glossary* defines many of the terms used in describing the soils or miscellaneous areas.

## **AA—Ayon-Apache complex, 1 to 9 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 125 to 150 days

*Note:* Located on basalt mesas in the southeastern part of the county.

### **Map Unit Composition**

Ayon and similar soils: 45 percent

Apache and similar soils: 40 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Ayon soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Parent material:* Alluvium and colluvium derived from basalt

*Slope:* 1 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex



*Surface fragments:* About 10 percent subrounded stones, about 10 percent subrounded cobbles

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.5 inches (low)

*Shrink-swell potential:* About 1.2 percent (low)

*Calcium carbonate maximum:* About 50 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Basalt Breaks

*Potential native vegetation:* sideoats grama, blue grama, little bluestem, big bluestem, true mountain mahogany, western wheatgrass, Gambel's oak, oneseed juniper, American vetch

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A—0 to 6 inches; very cobbly loam

Bw—6 to 14 inches; very cobbly loam

Bk1—14 to 19 inches; very cobbly loam

Bk2—19 to 65 inches; very cobbly loam

**Apache soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Parent material:* Residuum weathered from basalt

*Slope:* 1 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 15 percent subrounded medium and coarse gravel, about 10 percent subrounded cobbles, about 5 percent subrounded stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.9 inches (very low)

*Shrink-swell potential:* About 1.9 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Foothill

*Potential native vegetation:* little bluestem, sideoats grama, western wheatgrass, blue grama, true mountain mahogany, mountain muhly, New Mexico feathergrass, needleandthread, twoneedle pinyon, Gambel's oak, oneseed juniper, Rocky Mountain juniper

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 5 inches; cobbly loam

Bk1—5 to 9 inches; cobbly clay loam

Bk2—9 to 15 inches; cobbly clay loam

R—15 to 60 inches; bedrock

### Minor Components

Eguaje and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Slope:* 1 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Basalt Breaks

*Distinguishing characteristics:* These soils are similar to Ayon soils except they have a higher clay content and a developed subsoil.

Demayo and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus, volcanic cones

*Position on landform:* Side slope

*Slope:* 1 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Shallow Foothill

*Distinguishing characteristics:* These soils are similar to Apache soils but have greater than 35 percent rock fragment content in the profile.

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed Basalt.

### Major Uses

Rangeland, wildlife habitat

## AC—Ayon-Capulin complex, 3 to 25 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 125 to 150 days

*Note:* Located in the southern part of the county from Trinidad to Kim.

### Map Unit Composition

Ayon and similar soils: 50 percent  
Capulin and similar soils: 45 percent  
Minor components: 5 percent

### Component Descriptions

#### Ayon soils

*Landscape:* Lava plateaus, foothills

*Landform:* Fan remnants, fans

*Position on landform:* Rise

*Parent material:* Alluvium and colluvium derived from basalt

*Slope:* 3 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 10 percent subrounded cobbles, about 10 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.9 inches (low)

*Shrink-swell potential:* About 1.4 percent (low)

*Calcium carbonate maximum:* About 45 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Basalt Breaks

*Potential native vegetation:* sideoats grama, blue grama, little bluestem, big bluestem, true mountain mahogany, western wheatgrass, Gambel's oak, oneseed juniper, American vetch

*Land capability subclass (nonirrigated):* 7s

#### Typical Profile:

A—0 to 10 inches; very cobbly loam

Bw—10 to 14 inches; very cobbly loam

Bk1—14 to 32 inches; very gravelly loam

Bk2—32 to 60 inches; extremely gravelly loam

#### Capulin soils

*Landscape:* Lava plateaus, foothills

*Landform:* Fans, fan remnants

*Position on landform:* Rise

*Parent material:* Alluvium derived from basalt and sedimentary rock

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.5 inches (high)

*Shrink-swell potential:* About 2.1 percent (low)

*Calcium carbonate maximum:* About 25 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 1 (slightly sodic)

*Ecological site:* Basalt Loam

*Potential native vegetation:* blue grama, western wheatgrass, fourwing saltbush, green needlegrass, sideoats grama, winterfat, American vetch, bottlebrush squirreltail, yucca

*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 8 inches; loam

Bt1—8 to 17 inches; clay loam

Bt2—17 to 32 inches; clay loam

Bk1—32 to 38 inches; clay loam

Bk2—38 to 60 inches; gravelly loam

### Minor Components

Torreón and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Basalt Loam

*Distinguishing characteristics:* These soils are similar to Capulin soils, but have more than 35 percent clay content.

### Major Uses

Rangeland, wildlife habitat, fair source of gravel and cobbles

## AcC—Acantilado loam, 2 to 7 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.5 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the Dry Cimarron drainage in the southeastern part of the county.

### Map Unit Composition

Acantilado and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Acantilado soils

*Landscape:* Canyonlands

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.4 inches (high)

*Shrink-swell potential:* About 1.9 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, fourwing saltbush, galleta, green needlegrass, sideoats grama, winterfat, black grama, American vetch, bottlebrush squirreltail, sand dropseed, yucca

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 4 inches; loam

Bw—4 to 15 inches; silt loam

Btk1—15 to 28 inches; silt loam

Btk2—28 to 39 inches; silt loam

Btk3—39 to 58 inches; silt loam

Btk4—58 to 62 inches; silt loam

BCK—62 to 70 inches; silt loam

### **Minor Components**

Mauricanyon and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands

*Landform:* Drainageways

*Position on landform:* Talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 50 percent silt, more sand, and a higher organic matter content.

Rizozo and similar soils

*Composition:* About 5 percent

*Landscape:* Canyonlands

*Landform:* Hills, scarps

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Sandstone Breaks

*Distinguishing characteristics:* These soils are less than 20 inches deep to red sandstone bedrock.

### Major Uses

Rangeland, wildlife habitat

## AED—Earthen Dam

### Map Unit Setting

*Major Land Resource Area:* 69, 49

*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Mean annual precipitation:* 13 to 20 inches (330 to 508 millimeters)

*Mean annual air temperature:* 43 to 54 degrees F. (6.0 to 12.0 degrees C.)

*Frost-free period:* 75 to 145 days

### Map Unit Composition

Dams, earthen dam: 100 percent

Minor components: None

### Component Descriptions

#### Dams, earthen dam

*Aspect:* All aspects

*Land capability subclass (nonirrigated):* 8

## AnB—Ascalon sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located near Kim in the eastern part of the survey area.

### Map Unit Composition

Ascalon and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Ascalon soils

*Landscape:* Plains

*Landform:* Plains, hills, ridges

*Position on landform:* Side slope, base slope, talf

*Parent material:* Eolian deposits

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Well drained



*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)  
*Available water capacity:* About 8.3 inches (moderate)  
*Shrink-swell potential:* About 1.7 percent (low)  
*Calcium carbonate maximum:* About 10 percent  
*Gypsum maximum:* None  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Sandy (formerly Sandy Plains)  
*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, little bluestem, needleandthread, switchgrass, western wheatgrass, western sandcherry, sand dropseed, sideoats grama, sun sedge, American vetch, dotted gayfeather, spreading buckwheat, sand sagebrush  
*Land capability subclass (irrigated):* 3e  
*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

Ap—0 to 3 inches; sandy loam  
 BA—3 to 7 inches; sandy loam  
 Bt1—7 to 14 inches; sandy clay loam  
 Bt2—14 to 23 inches; sandy clay loam  
 Bk1—23 to 30 inches; sandy clay loam  
 Bk2—30 to 65 inches; loam

**Minor Components**

Vona and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Hills, plains  
*Position on landform:* Talf, side slope, base slope  
*Slope:* 0 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Sandy (formerly Sandy Plains)  
*Distinguishing characteristics:* These soils have less than 18 percent clay content and more sand in the profile.

Olneest and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Hills, hills, plains  
*Position on landform:* Base slope, talf, interfluve  
*Slope:* 1 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Sandy (formerly Sandy Plains)  
*Distinguishing characteristics:* These soils do not have a thick dark surface layer.

Wapiti and similar soils

*Composition:* About 4 percent  
*Landscape:* Plains  
*Landform:* Drainageways, plains  
*Position on landform:* Talf, dip

*Slope:* 0 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils have less than 45 percent sand in the profile.

#### Blown-out land

*Composition:* About 1 percent  
*Landscape:* Plains  
*Landform:* Hills  
*Position on landform:* Crest  
*Slope:* 1 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Concave/concave  
*Drainage class:* Excessively drained  
*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.

#### Major Uses

Rangeland, wildlife habitat, nonirrigated cropland

### Ap—Apache cobbly loam, 5 to 25 percent slopes, stony

#### Map Unit Setting

*Major Land Resource Area:* 70  
*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)  
*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)  
*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)  
*Frost-free period:* 125 to 150 days  
*Note:* Located in the southern part of the county from Trinchera to the Baca County line.

#### Map Unit Composition

Apache and similar soils: 85 percent  
 Minor components: 15 percent

#### Component Descriptions

##### Apache soils

*Landscape:* Lava plateaus, plains  
*Landform:* Lava flows, scarps  
*Parent material:* Residuum weathered from basalt  
*Slope:* 5 to 25 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/linear  
*Surface fragments:* About 15 percent subrounded medium and coarse gravel, about 10 percent subrounded cobbles, and about 5 percent subrounded stones  
*Depth class:* Shallow  
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)  
*Available water capacity:* About 1.9 inches (very low)

*Shrink-swell potential:* About 1.9 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Foothill

*Potential native vegetation:* little bluestem, sideoats grama, western wheatgrass, blue grama, true mountain mahogany, mountain muhly, New Mexico feathergrass, needleandthread, twoneedle pinyon, Gambel's oak, oneseed juniper, Rocky Mountain juniper

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 5 inches; cobbly loam

Bk1—5 to 9 inches; cobbly clay loam

Bk2—9 to 15 inches; cobbly clay loam

R—15 to 60 inches; bedrock

### **Minor Components**

Demayo and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Position on landform:* Crest

*Slope:* 5 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Shallow Foothill

*Distinguishing characteristics:* These soils have greater than 35 percent rock fragments in the profile.

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Slope:* 5 to 25 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of ridges and escarpments of basalt

### **Major Uses**

Rangeland, wildlife habitat

## **AR—Calcidic Argiustolls-Rock outcrop complex, 40 to 60 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 120 to 145 days

*Note:* Located on steep basalt mesa side slopes from Trinchera to the Baca county line.

### Map Unit Composition

Calcidic Argiustolls and similar soils: 65 percent

Rock outcrop: 15 percent

Minor components: 20 percent

### Component Descriptions

#### Calcidic Argiustolls soils

*Landscape:* Lava plateaus

*Landform:* Hillslopes

*Position on landform:* Side slope, head slope

*Parent material:* Colluvium

*Slope:* 40 to 55 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Surface fragments:* About 2 percent subrounded stones, about 20 percent subrounded cobbles

*Depth class:* Deep and very deep

*Depth to restrictive feature:* 40 to 72 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 5.7 inches (low)

*Shrink-swell potential:* About 3.3 percent (moderate)

*Calcium carbonate maximum:* About 25 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Basalt Breaks

*Potential native vegetation:* sideoats grama, New Mexico feathergrass, little bluestem, mountain mahogany, Gambel's oak, oneseed juniper, mountain muhly, twoneedle pinyon, American vetch

*Land capability subclass (nonirrigated):* 7s

#### Typical Profile:

A—0 to 8 inches; very stony clay loam

Bt1—8 to 10 inches; cobbly clay

Bt2—10 to 20 inches; cobbly clay

Btk—20 to 35 inches; very cobbly clay loam

Bk—35 to 60 inches; very cobbly clay loam

#### Rock outcrop

*Description:* Rock outcrop consists of near-vertical escarpments of exposed basalt.

*Landscape:* Lava plateaus

*Landform:* Scarps

*Parent material:* Basalt

*Slope:* 40 to 60 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Aridic Calciustolls and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus, hills

*Slope:* 40 to 50 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth to restrictive feature:* 20 to 71 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Basalt Breaks

*Distinguishing characteristics:* These soils have a developed subsoil.

Ayon and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Hills

*Slope:* 15 to 30 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Basalt Breaks

*Distinguishing characteristics:* These soils have less than 35 percent clay content in the profile.

Rubble land

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Hillslopes

*Position on landform:* Mountainflank

*Slope:* 40 to 60 percent

*Aspect:* All aspects

*Distinguishing characteristics:* Rubble land consists of areas of accumulated cobbles, stones and boulders that lack soil material.

**Major Uses**

Rangeland, wildlife habitat

**AsB—Ascalon sandy loam, 0 to 3 percent slopes, overblown****Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the eastern part of the county near Kim.

**Map Unit Composition**

Ascalon, overblown and similar soils: 85 percent

Minor components: 15 percent

## Component Descriptions

### Ascalon, overblown soils

*Landscape:* Plains

*Landform:* Hills, plains

*Position on landform:* Talf, base slope

*Parent material:* Eolian sands

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 7.4 inches (moderate)

*Shrink-swell potential:* About 1.7 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy (formerly Sandy Plains)

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, little bluestem, needleandthread, switchgrass, western wheatgrass, western sandcherry, sand dropseed, sideoats grama, sun sedge, American vetch, dotted gayfeather, spreading buckwheat, sand sagebrush

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

#### *Typical Profile:*

A—0 to 15 inches; sandy loam

Bt1—15 to 30 inches; sandy clay loam

Bt2—30 to 40 inches; sandy clay loam

Bk1—40 to 49 inches; sandy loam

2Bk2—49 to 65 inches; fine sandy loam

### Minor Components

#### Olneest and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, hills, plains

*Position on landform:* Talf, interfluve, base slope

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils do not have a thick dark surface layer.

#### Vona, overblown and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains, hills, ridges

*Position on landform:* Crest, side slope, talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Somewhat excessively drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils do not have a thick dark surface layer and less than 18 percent clay content in the profile.

#### Wapiti and similar soils

*Composition:* About 4 percent

*Landscape:* Plains

*Landform:* Drainageways, plains

*Position on landform:* Talf, dip

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 45 percent sand content in the profile.

#### Blown-out land

*Composition:* About 1 percent

*Landscape:* Plains

*Landform:* Hills

*Position on landform:* Talf

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Excessively drained

*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.

### Major Uses

Rangeland, wildlife habitat, nonirrigated cropland

## AV—Aguilar-Beckton complex, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69, 67

*Elevation:* 5,000 to 6,100 feet (1,524 to 1,860 meters)

*Mean annual precipitation:* 13 to 15 inches (331 to 381 millimeters)

*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located along the Apishapa, Chicosa, and other major drainages near Aguilar, Model, and Thatcher.

### Map Unit Composition

Aguilar and similar soils: 45 percent

Beckton and similar soils: 45 percent

Minor components: 10 percent



## Component Descriptions

### **Aguilar soils**

*Landscape:* River valleys

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Clayey alluvium

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Depth to restrictive feature:* 2 to 6 inches to natric

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 7.1 inches (moderate)

*Shrink-swell potential:* About 6.7 percent (high)

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 20 mmhos/cm (strongly saline)

*Sodium adsorption ratio maximum:* About 35 (strongly sodic)

*Ecological site:* Salt Flat

*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, fourwing saltbush, galleta, greasewood, American vetch

*Land capability subclass (nonirrigated):* 7s

#### *Typical Profile:*

E—0 to 4 inches; fine sandy loam

B<sub>tn1</sub>—4 to 10 inches; clay

B<sub>tn2</sub>—10 to 14 inches; silty clay

B<sub>tny</sub>—14 to 23 inches; clay

B<sub>tkny</sub>—23 to 29 inches; clay loam

B<sub>kny</sub>—29 to 45 inches; silty clay loam

B<sub>ny</sub>—45 to 65 inches; silty clay loam

### **Beckton soils**

*Landscape:* River valleys

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Clayey alluvium

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Depth to restrictive feature:* 2 to 20 inches to natric

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 6.3 inches (moderate)

*Shrink-swell potential:* About 7.2 percent (high)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 20 mmhos/cm (strongly saline)

*Sodium adsorption ratio maximum:* About 40 (strongly sodic)

*Ecological site:* Salt Flat

*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, fourwing saltbush, alkali muhly, galleta, greasewood, American vetch



*Land capability subclass (nonirrigated): 7s*

*Typical Profile:*

A—0 to 3 inches; silt loam  
 Btn1—3 to 13 inches; silty clay loam  
 Btn2—13 to 23 inches; silty clay  
 Btny—23 to 36 inches; silty clay  
 Bny—36 to 52 inches; silty clay  
 Bky1—52 to 59 inches; silty clay loam  
 2Bky2—59 to 72 inches; stratified sandy loam to sandy clay loam

**Minor Components**

Manzanola and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Drainageways, terraces

*Position on landform:* Talf, tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey

*Distinguishing characteristics:* These soils are slightly saline.

**Major Uses**

Rangeland, wildlife habitat

**AvC—Aguilar silt loam, 2 to 5 percent slopes, gullied**

**Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 5,000 to 6,100 feet (1,524 to 1,860 meters)

*Mean annual precipitation:* 12 to 15 inches (305 to 381 millimeters)

*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in the north-central part of the county from Aguilar to Thatcher.

**Map Unit Composition**

Aguilar and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions**

**Aguilar soils**

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Rise

*Parent material:* Clayey alluvium

*Slope:* 2 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth class:* Very deep

*Depth to restrictive feature:* 2 to 7 inches to natric

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)  
*Available water capacity:* About 7.7 inches (moderate)  
*Shrink-swell potential:* About 6.8 percent (high)  
*Calcium carbonate maximum:* About 5 percent  
*Gypsum maximum:* About 5 percent  
*Salinity maximum:* About 20 mmhos/cm (strongly saline)  
*Sodium adsorption ratio maximum:* About 35 (strongly sodic)  
*Ecological site:* Alkaline Plains  
*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, fourwing saltbush, galleta, winterfat, greasewood, American vetch  
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

E—0 to 6 inches; silt loam  
 Btn—6 to 14 inches; clay  
 Btkny—14 to 28 inches; silty clay  
 Btny—28 to 41 inches; silty clay loam  
 Bny—41 to 65 inches; silty clay loam

**Minor Components**

Razor and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Hills, pediments  
*Position on landform:* Rise, head slope, side slope  
*Slope:* 4 to 12 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/convex  
*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic  
*Drainage class:* Well drained  
*Ecological site:* Clayey  
*Distinguishing characteristics:* These soils are 20 to 40 inches deep to shale bedrock.

Bloom and similar soils

*Composition:* About 5 percent  
*Landscape:* River valleys  
*Landform:* Drainageways, terraces  
*Position on landform:* Tread, dip  
*Slope:* 1 to 2 percent  
*Aspect:* All aspects  
*Shape (down/across):* Concave/linear  
*Drainage class:* Somewhat poorly drained  
*Flooding hazard:* Occasional  
*Ecological site:* Salt Meadow  
*Distinguishing characteristics:* These soils have a water table at or near the surface.

**Major Uses**

Rangeland, wildlife habitat

## **AW—Allens Park-Wahatoya complex, 30 to 60 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 49

*Elevation:* 7,400 to 8,800 feet (2,256 to 2,682 meters)

*Mean annual precipitation:* 20 to 24 inches (508 to 610 millimeters)

*Mean annual air temperature:* 42 to 45 degrees F. (5.6 to 7.0 degrees C.)

*Frost-free period:* 70 to 100 days

*Note:* Located on higher elevation north-facing slopes in the foothills west of Gulnare.

### **Map Unit Composition**

Allens Park and similar soils: 45 percent

Wahatoya and similar soils: 40 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Allens Park soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Base slope, side slope

*Parent material:* Slope alluvium and residuum weathered from sandstone

*Slope:* 30 to 50 percent

*Aspect:* Northwest to northeast

*Shape (down/across):* Linear/linear

*Surface fragments:* About 1 percent subrounded stones

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 5.1 inches (low)

*Shrink-swell potential:* About 1.7 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica

*Potential native vegetation:*

Common trees: ponderosa pine, Rocky Mountain Douglas fir, white fir

Other plants: mountain muhly, Arizona fescue, Parry's danthonia, common juniper, Gambel's oak, kinnikinnick, little bluestem, muttongrass, nodding brome, pine dropseed, Sandberg bluegrass

*Land capability subclass (nonirrigated):* 7e

#### *Typical Profile:*

Oi—0 to 2 inches; slightly decomposed plant material

A—2 to 4 inches; sandy loam

E—4 to 9 inches; sandy loam

B/E—9 to 14 inches; sandy clay loam  
 Bt1—14 to 30 inches; sandy clay loam  
 Bt2—30 to 37 inches; sandy clay loam  
 R—37 to 60 inches; bedrock

### **Wahatoya soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, side slope

*Parent material:* Colluvium and residuum weathered from sandstone

*Slope:* 30 to 60 percent

*Aspect:* Northwest to northeast

*Shape (down/across):* Linear/convex

*Surface fragments:* About 5 percent subrounded stones

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.6 inches (low)

*Shrink-swell potential:* About 1.7 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica

*Potential native vegetation:*

Common trees: Rocky Mountain Douglas fir, white fir, ponderosa pine

Other plants: mountain muhly, Arizona fescue, nodding brome, Parry's danthonia,  
 common juniper, elk sedge, Gambel's oak, muttongrass, pine dropseed,  
 Sandberg bluegrass, kinnikinnick, fringed sagewort

*Land capability subclass (nonirrigated):* 7s

### *Typical Profile:*

Oi—0 to 1 inch; slightly decomposed plant material

A—1 inch to 3 inches; sandy loam

E—3 to 9 inches; sandy loam

Bt1—9 to 21 inches; very cobbly sandy clay loam

Bt2—21 to 31 inches; very cobbly sandy clay loam

BC—31 to 36 inches; very cobbly sandy clay loam

R—36 to 60 inches; bedrock

### **Minor Components**

Gulnare and similar soils

*Composition:* About 8 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, side slope

*Slope:* 30 to 50 percent

*Aspect:* Northwest to northeast

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are less than 20 inches to sandstone bedrock.

**Littlepine and similar soils***Composition:* About 7 percent*Landscape:* Foothills*Landform:* Fan remnants, hills*Position on landform:* Base slope, side slope, rise*Slope:* 5 to 15 percent*Aspect:* Northwest to northeast*Shape (down/across):* Linear/convex*Drainage class:* Well drained*Ecological site:* Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica*Distinguishing characteristics:* These soils are similar to Allens Park soils but are greater than 60 inches to bedrock.**Major Uses**

Woodland, livestock grazing, wildlife habitat

**BaA—Baca silt loam, 0 to 3 percent slopes****Map Unit Setting***Major Land Resource Area:* 67*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)*Frost-free period:* 130 to 155 days*Note:* Located in the eastern part of the county near Villegreen and Kim.**Map Unit Composition**

Baca and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Baca soils***Landscape:* Plains*Landform:* Plains*Position on landform:* Talf*Parent material:* Loess*Slope:* 0 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth class:* Very deep*Drainage class:* Well drained*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)*Available water capacity:* About 10.1 inches (high)*Shrink-swell potential:* About 3.2 percent (moderate)*Calcium carbonate maximum:* About 15 percent*Gypsum maximum:* About 3 percent*Salinity maximum:* About 2 mmhos/cm (nonsaline)*Sodium adsorption ratio maximum:* About 2 (slightly sodic)*Ecological site:* Loamy (formerly Loamy Plains)*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, buffalograss, winterfat, American vetch, purple prairieclover, sand dropseed, scarlet globemallow, sun sedge

*Land capability subclass (irrigated): 2e*

*Land capability subclass (nonirrigated): 4c*

*Typical Profile:*

- A—0 to 3 inches; silt loam
- AB—3 to 6 inches; silty clay loam
- Bt1—6 to 13 inches; silty clay
- Bt2—13 to 21 inches; silty clay
- Btk—21 to 27 inches; silty clay loam
- Bk1—27 to 37 inches; silty clay loam
- Bk2—37 to 47 inches; silty clay loam
- Bk3—47 to 72 inches; silt loam

**Minor Components**

Wiley and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

Manzanst and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Talf

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils are calcareous to the surface.

Boxcanyon and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils are similar to Baca soils but are 40 to 60 inches deep to sandstone bedrock.



### Major Uses

Rangeland, wildlife habitat, nonirrigated cropland

## BaB—Bacid silt loam, 1 to 5 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the northeastern and north-central parts of the county near Ninaview and the Purgatoire River Canyon.

### Map Unit Composition

Bacid and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Bacid soils

*Landscape:* Plains

*Landform:* Plains, fans

*Position on landform:* Rise

*Parent material:* Silty and clayey alluvium and/or loess

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.5 inches (high)

*Shrink-swell potential:* About 5.4 percent (moderate)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, fourwing saltbush, galleta, green needlegrass, winterfat, sideoats grama, American vetch, dotted gayfeather

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6c

#### Typical Profile:

A—0 to 5 inches; silt loam

Bt1—5 to 13 inches; silty clay loam

Bt2—13 to 20 inches; silty clay loam

Btk—20 to 30 inches; silty clay loam

Bk—30 to 60 inches; silt loam

### Minor Components

Wilid and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have less than 35 percent clay.

Manzanola and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Talf

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are calcareous to the surface.

### Major Uses

Rangeland, wildlife habitat

## BaC—Baca silt loam, 3 to 5 percent slopes, cool

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,800 to 6,500 feet (1,768 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 49 to 52 degrees F. (9.5 to 11.0 degrees C.)

*Frost-free period:* 120 to 140 days

*Note:* Located on fans south and southeast of Trinidad.

### Map Unit Composition

Baca, cool and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Baca, cool soils

*Landscape:* Foothills

*Landform:* Fan remnants

*Position on landform:* Rise

*Parent material:* Alluvium derived from shale and siltstone

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained  
*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)  
*Available water capacity:* About 10.1 inches (high)  
*Shrink-swell potential:* About 2.9 percent (low)  
*Calcium carbonate maximum:* About 15 percent  
*Gypsum maximum:* About 3 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 2 (slightly sodic)  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, buffalograss, winterfat, American vetch, purple prairieclover, sand dropseed, scarlet globemallow, sun sedge  
*Land capability subclass (irrigated):* 3e  
*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 6 inches; silt loam  
Bt1—6 to 9 inches; silty clay loam  
Bt2—9 to 25 inches; clay  
Btk—25 to 32 inches; silty clay loam  
Bk1—32 to 45 inches; clay loam  
Bk2—45 to 60 inches; loam

**Minor Components**

Capulin and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Fans  
*Position on landform:* Rise  
*Slope:* 3 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils have less than 35 percent clay content and more sand in the profile.

Wiley and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Fans  
*Position on landform:* Rise  
*Slope:* 3 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils have less than 35 percent clay content.

Calemore and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Fan remnants  
*Position on landform:* Rise

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 35 percent clay content and a thick, dark surface layer.

#### Major Uses

Rangeland, hay and pasture, wildlife habitat

### **BcA—Baca silt loam, 0 to 3 percent slopes, cool**

#### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,800 to 6,500 feet (1,768 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 49 to 52 degrees F. (9.5 to 11.0 degrees C.)

*Frost-free period:* 120 to 140 days

*Note:* Located east of the foothills from Trinidad to Aguilar.

#### Map Unit Composition

Baca, cool and similar soils: 85 percent

Minor components: 15 percent

#### Component Descriptions

##### **Baca, cool soils**

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Tread, rise

*Parent material:* Alluvium derived from shale and siltstone

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 10.1 inches (high)

*Shrink-swell potential:* About 2.9 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, buffalograss, winterfat, American vetch, purple prairieclover, sand dropseed, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

##### *Typical Profile:*

A—0 to 6 inches; silt loam

Bt1—6 to 9 inches; silty clay loam

Bt2—9 to 25 inches; clay  
Btk—25 to 32 inches; silty clay loam  
Bk1—32 to 45 inches; clay loam  
Bk2—45 to 60 inches; loam

**Minor Components**

Capulin and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

Wiley and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans

*Position on landform:* Talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

**Major Uses**

Nonirrigated cropland, rangeland, wildlife habitat

**Bk—Fallriver extremely stony sandy loam, 30 to 60 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 9,500 to 11,000 feet (2,896 to 3,353 meters)

*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)

*Mean annual air temperature:* 34 to 37 degrees F. (1.0 to 3.0 degrees C.)

*Frost-free period:* 40 to 50 days

*Note:* Located near timber line in the Sangre de Cristo mountains west of Stonewall.

**Map Unit Composition**

Fallriver and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Fallriver soils**

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium and till derived from monzonite and granodiorite

*Slope:* 30 to 60 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Surface fragments:* About 15 percent subrounded stones, about 15 percent subrounded cobbles, about 40 percent subrounded gravel

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 3.2 inches (low)

*Shrink-swell potential:* About 1.0 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Engelmann's spruce-Subalpine fir

*Potential native vegetation:*

Common trees: subalpine fir, Engelmann's spruce

Other plants: grouse whortleberry, bluegrass, elk sedge, mountain brome, Thurber's fescue, common juniper, muttongrass, russet buffaloberry, Woods' rose

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 16 inches; extremely stony sandy loam

Bw—16 to 30 inches; very gravelly sandy loam

BC—30 to 70 inches; very gravelly sandy loam

### **Minor Components**

Angostura and similar soils

*Composition:* About 12 percent

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Slope:* 30 to 60 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Engelmann's spruce-Subalpine fir

*Distinguishing characteristics:* These soils have a developed subsoil, greater than 18 percent clay content and have a higher base saturation.

Rock outcrop

*Composition:* About 3 percent

*Landscape:* Mountains

*Landform:* Mountains, mountain slopes

*Slope:* 30 to 60 percent



*Aspect:* North to south

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed monzonite and diorite.

### Major Uses

Woodland, recreation, wildlife habitat

## BnA—Bacid silty clay loam, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 5,500 to 6,000 feet (1,677 to 1,829 meters)

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 145 days

*Note:* Located in the irrigated areas of the county near Hoehne. These soils have more clay in the surface due to muddy irrigation water.

### Map Unit Composition

Bacid and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Bacid soils

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Silty and clayey alluvium from irrigation water over clayey alluvium derived from sedimentary rock

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.3 inches (high)

*Shrink-swell potential:* About 4.5 percent (moderate)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Clayey

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, galleta, green needlegrass, alkali sacaton, winterfat, American vetch

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*

Ap—0 to 8 inches; silty clay loam  
 Bt—8 to 15 inches; clay  
 Btk—15 to 30 inches; silty clay loam  
 Bk—30 to 60 inches; loam

**Minor Components**

## Wilid and similar soils

*Composition:* About 10 percent  
*Landscape:* Plains  
*Landform:* Old terraces  
*Position on landform:* Tread  
*Slope:* 0 to 2 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Clayey  
*Distinguishing characteristics:* These soils have less than 35 percent clay content.

## Manzanola and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Drainageways, terraces  
*Position on landform:* Talf, tread  
*Slope:* 0 to 2 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy  
*Distinguishing characteristics:* These soils are calcareous to the surface.

**Major Uses**

Irrigated cropland

**BT—Barela-Raton complex, 1 to 8 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A  
*Elevation:* 8,000 to 9,000 feet (2,438 to 2,743 meters)  
*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)  
*Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)  
*Frost-free period:* 80 to 100 days  
*Note:* Located on the Barela and Little Fishers Peak basalt mesas along the New Mexico state line.

**Map Unit Composition**

Barela and similar soils: 60 percent  
 Raton and similar soils: 25 percent  
 Minor components: 15 percent

### Component Descriptions

#### **Barela soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Position on landform:* Rise

*Parent material:* Alluvium and residuum weathered from basalt

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 1 percent subangular stones

*Depth class:* Deep

*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 6.0 inches (moderate)

*Shrink-swell potential:* About 3.5 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy Park

*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, fringed sagewort, mountain brome, Sandberg bluegrass, Letterman's needlegrass, American vetch, prairie junegrass

*Land capability subclass (nonirrigated):* 4c

#### *Typical Profile:*

A—0 to 5 inches; silt loam

AB—5 to 11 inches; silt loam

Bt1—11 to 16 inches; stony silty clay loam

Bt2—16 to 20 inches; gravelly silty clay loam

Bt3—20 to 30 inches; gravelly silty clay

Bt4—30 to 36 inches; cobbly silty clay

Bt5—36 to 48 inches; very stony clay

R—48 to 60 inches; bedrock

#### **Raton soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus, ridges, ridges

*Position on landform:* Crest, head slope

*Parent material:* Colluvium and residuum weathered from basalt

*Slope:* 3 to 8 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 4 percent subangular cobbles, about 5 percent subrounded stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 1.7 inches (very low)

*Shrink-swell potential:* About 2.7 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Loam

*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, western wheatgrass, Gambel's oak, pine dropseed, Sandberg bluegrass, true mountain mahogany, nodding brome, fringed sagewort, muttongrass, prairie junegrass

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A1—0 to 6 inches; cobbly loam

A2—6 to 9 inches; very cobbly clay loam

Bt—9 to 17 inches; very stony clay

R—17 to 60 inches; bedrock

### **Minor Components**

Fishers and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Position on landform:* Side slope

*Slope:* 4 to 8 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy Park

*Distinguishing characteristics:* These soils are typically greater than 60 inches deep to bedrock and have more than 35 percent rock fragments in the profile.

Cumulic Cryaquolls and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Drainageways

*Position on landform:* Dip

*Slope:* 2 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have a high water table during the growing season.

### **Major Uses**

Rangeland, recreation, wildlife habitat

## **BwA—Bloom silty clay loam, 0 to 2 percent slopes, occasionally flooded**

### **Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 5,000 to 5,800 feet (1,524 to 1,768 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the irrigated areas of the county near Hoehne and Model.

### **Map Unit Composition**

Bloom and similar soils: 85 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Bloom soils**

*Landscape:* River valleys

*Landform:* Flood plains

*Position on landform:* Tread

*Parent material:* Silty alluvium

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 10.7 inches (high)

*Shrink-swell potential:* About 4.3 percent (moderate)

*Flooding hazard:* Occasional

*Ponding hazard:* Rare

*Seasonal high water table depth:* About 12 to 36 inches

*Calcium carbonate maximum:* About 8 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 8 (slightly sodic)

*Ecological site:* Salt Meadow

*Potential native vegetation:* alkali sacaton, switchgrass, western wheatgrass, prairie cordgrass, alkali bluegrass, sedge, vine mesquite, Baltic rush

*Land capability subclass (irrigated):* 4w

*Land capability subclass (nonirrigated):* 6w

#### *Typical Profile:*

Ap—0 to 8 inches; silty clay loam

ACg—8 to 18 inches; silty clay loam

Bzg1—18 to 45 inches; silty clay loam

Bzg2—45 to 60 inches; silt loam

### Minor Components

#### Manzanola and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Tread, talf

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey

*Distinguishing characteristics:* These soils have greater than 35 percent clay content and do not have a water table.

#### Limon and similar soils

*Composition:* About 5 percent

*Landscape:* River valleys

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Salt Flat

*Distinguishing characteristics:* These soils have greater than 35 percent clay content, do not have a water table, and are strongly alkaline.

### Major Uses

Hay and pasture, rangeland, wildlife habitat

## Bx—Boxcanyon silt loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the central part of the county north of Branson.

### Map Unit Composition

Boxcanyon and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Boxcanyon soils

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Rise

*Parent material:* Loess over residuum weathered from sandstone



*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Deep

*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 8.8 inches (moderate)

*Shrink-swell potential:* About 3.9 percent (moderate)

*Calcium carbonate maximum:* About 50 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, winterfat, sand dropseed, American vetch, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 2 inches; silt loam

Bt—2 to 17 inches; silty clay loam

Btk1—17 to 27 inches; clay

Btk2—27 to 33 inches; silty clay loam

Bk1—33 to 45 inches; loam

2Bk2—45 to 54 inches; fine gravelly loam

2R—54 to 60 inches; bedrock

### **Minor Components**

Wiley and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock and average less than 35 percent clay content.

Baca and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

Villegreen and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Rise

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils are 20 to 40 inches to sandstone bedrock.

### Major Uses

Rangeland, wildlife habitat

## CaD—Razor silty clay, 4 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 5,800 feet (1,372 to 1,768 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in the north-central part of the county near Thatcher and Delhi. A few areas have deep gullies.

### Map Unit Composition

Razor and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Razor soils

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Rise, head slope, side slope

*Parent material:* Clayey alluvium over residuum weathered from shale

*Slope:* 4 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 4.5 inches (low)

*Shrink-swell potential:* About 7.5 percent (high)

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 10 mmhos/cm (moderately saline)

*Sodium adsorption ratio maximum:* About 14 (moderately sodic)

*Ecological site:* Clayey

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, galleta, green needlegrass, alkali sacaton, winterfat, American vetch

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 2 inches; silty clay

Bw—2 to 10 inches; clay

Bkss—10 to 28 inches; clay

Cr—28 to 40 inches; bedrock

### **Minor Components**

**Midway and similar soils**

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Side slope, head slope, rise

*Slope:* 4 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth to restrictive feature:* 6 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Shaly Plains

*Distinguishing characteristics:* These soils are less than 20 inches to shale bedrock.

**Manzanola and similar soils**

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Talf

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey

*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

**Rock outcrop**

*Composition:* About 1 percent

*Landscape:* Plains

*Landform:* Scarps

*Slope:* 3 to 12 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, paralithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed shale and limestone.

### **Major Uses**

Rangeland, wildlife habitat

## CC—Chacuaco-Capulin loams, 1 to 4 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,828 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the south-central part of the county north of Branson.

### Map Unit Composition

Chacuaco and similar soils: 50 percent

Capulin and similar soils: 40 percent

Minor components: 10 percent

### Component Descriptions

#### Chacuaco soils

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Rise

*Parent material:* Eolian deposits over residuum weathered from sandstone

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 4.8 inches (low)

*Shrink-swell potential:* About 2.2 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, fourwing saltbush, winterfat, bottlebrush squirreltail, little bluestem, sand dropseed, American vetch, purple prairieclover, scarlet globemallow, sideoats grama

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4e

#### Typical Profile:

A—0 to 8 inches; loam

AB—8 to 12 inches; clay loam

Bt—12 to 19 inches; clay loam

Btk—19 to 26 inches; clay loam

Bk—26 to 32 inches; gravelly loam

R—32 to 60 inches; bedrock

#### Capulin soils

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Parent material:* Alluvium derived from basalt and sedimentary rock

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.5 inches (high)

*Shrink-swell potential:* About 2.1 percent (low)

*Calcium carbonate maximum:* About 25 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 1 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, fourwing saltbush, green needlegrass, sideoats grama, winterfat, American vetch, bottlebrush squirreltail, yucca

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 8 inches; loam

Bt1—8 to 17 inches; clay loam

Bt2—17 to 32 inches; clay loam

Bk1—32 to 38 inches; clay loam

Bk2—38 to 60 inches; gravelly loam

### **Minor Components**

Daleroose and similar soils

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Scarps

*Position on landform:* Crest

*Slope:* 2 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Sandstone Breaks

*Distinguishing characteristics:* These soils are less than 20 inches to sandstone bedrock.

Rock outcrop

*Composition:* About 1 percent

*Landscape:* Plains

*Landform:* Scarps

*Slope:* 2 to 4 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed Dakota sandstone.

### Major Uses

Rangeland, wildlife habitat

## CD—Chacuaco-Dalero complex, 2 to 7 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 125 to 150 days

*Note:* Located in the southeastern part of the county south of Kim.

### Map Unit Composition

Chacuaco and similar soils: 60 percent

Dalero and similar soils: 30 percent

Minor components: 10 percent

### Component Descriptions

#### Chacuaco soils

*Landscape:* Plains

*Landform:* Plains, interfluvies, ridges

*Position on landform:* Side slope, Rise

*Parent material:* Eolian deposits over residuum weathered from sandstone

*Slope:* 2 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 4.2 inches (low)

*Shrink-swell potential:* About 2.1 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, fourwing saltbush, winterfat, bottlebrush squirreltail, little bluestem, sand dropseed, American vetch, purple prairieclover, scarlet globemallow, sideoats grama

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4e

#### Typical Profile:

A—0 to 5 inches; loam

AB—5 to 10 inches; loam

Bt—10 to 20 inches; clay loam

Bk—20 to 30 inches; very gravelly loam

R—30 to 60 inches; bedrock



**Dalerose soils***Landscape:* Plains*Landform:* Scarps*Position on landform:* Crest*Parent material:* Slope alluvium and residuum weathered from sandstone*Slope:* 3 to 7 percent*Aspect:* All aspects*Shape (down/across):* Convex/convex*Surface fragments:* About 3 percent subrounded medium and coarse gravel, about 2 percent subrounded cobbles*Depth class:* Very shallow and shallow*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic*Drainage class:* Well drained*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)*Available water capacity:* About 1.0 inches (very low)*Shrink-swell potential:* About 1.5 percent (low)*Calcium carbonate maximum:* About 15 percent*Gypsum maximum:* None*Salinity maximum:* About 2 mmhos/cm (nonsaline)*Sodium adsorption ratio maximum:* About 0 (nonsodic)*Ecological site:* Sandstone Breaks*Potential native vegetation:* little bluestem, prairie sandreed, sideoats grama, blue grama, sand bluestem, needleandthread, big bluestem, chokecherry, golden currant, prairie junegrass, purple prairieclover, western wheatgrass, spreading buckwheat*Land capability subclass (nonirrigated):* 7s*Typical Profile:*

A—0 to 5 inches; gravelly fine sandy loam

Bk—5 to 10 inches; gravelly loam

R—10 to 60 inches; bedrock

**Minor Components**

Rock outcrop

*Composition:* About 10 percent*Landscape:* Plains*Landform:* Scarps*Slope:* 3 to 7 percent*Aspect:* All aspects*Depth to restrictive feature:* 0 inches to bedrock, lithic*Distinguishing characteristics:* Rock outcrop consists of areas of exposed Dakota sandstone.**Major Uses**

Rangeland, wildlife habitat

**Co—Collegiate loam, 1 to 4 percent slopes****Map Unit Setting***Major Land Resource Area:* 49*Elevation:* 7,000 to 8,500 feet (2,134 to 2,591 meters)*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)

*Mean annual air temperature:* 40 to 43 degrees F. (4.5 to 6.0 degrees C.)

*Frost-free period:* 70 to 90 days

*Note:* Located along major drainageways in the foothills.

### **Map Unit Composition**

Collegiate and similar soils: 85 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Collegiate soils**

*Landscape:* Foothills

*Landform:* Flood plains

*Position on landform:* Tread

*Parent material:* Loamy alluvium over gravelly alluvium derived from igneous and sedimentary rock

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 5.6 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Flooding hazard:* Occasional

*Seasonal high water table depth:* About 12 to 36 inches

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Mountain Meadow

*Potential native vegetation:* Nebraska sedge, tufted hairgrass, water sedge, slender wheatgrass, western wheatgrass, Baltic rush, smallwing sedge, willow, shrubby cinquefoil, Rocky Mountain iris

*Land capability subclass (irrigated):* 3w

*Land capability subclass (nonirrigated):* 4w

#### *Typical Profile:*

A—0 to 10 inches; loam

Ag—10 to 38 inches; fine sandy loam

2C—38 to 60 inches; very gravelly sand

#### **Minor Components**

Molinaro and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fan remnants, terraces, valley floors

*Position on landform:* Rise, tread

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils do not have a water table.

**Furia and similar soils***Composition:* About 5 percent*Landscape:* River valleys*Landform:* Flood plains, drainageways*Position on landform:* Tread*Slope:* 1 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Poorly drained*Flooding hazard:* Occasional*Ecological site:* Mountain Meadow*Distinguishing characteristics:* These soils do not have sand and gravel deposits in the substratum and have greater than 35 percent clay content.**Major Uses**

Hay and pasture, rangeland, wildlife habitat

**CpA—Calemore clay loam, 0 to 2 percent slopes****Map Unit Setting***Major Land Resource Area:* 67*Elevation:* 5,700 to 6,000 feet (1,737 to 1,828 meters)*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)*Frost-free period:* 125 to 155 days*Note:* Located in the irrigated areas of the county from Trinidad to Hoehne. These soils have a thick dark more clayey surface horizon derived from muddy irrigation water.**Map Unit Composition**

Calemore and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Calemore soils***Landscape:* Plains*Landform:* Fans, terraces*Position on landform:* Rise*Parent material:* Silty and clayey alluvium from irrigation water over silty alluvium derived from sedimentary rock*Slope:* 0 to 2 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth class:* Very deep*Drainage class:* Well drained*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)*Available water capacity:* About 10.9 inches (high)*Shrink-swell potential:* About 2.9 percent (low)*Calcium carbonate maximum:* About 25 percent*Gypsum maximum:* None*Salinity maximum:* About 2 mmhos/cm (nonsaline)*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, winterfat, American vetch, buffalograss, purple prairieclover, scarlet globemallow, sedge

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

Ap—0 to 9 inches; clay loam

Bt1—9 to 15 inches; silty clay loam

Bt2—15 to 22 inches; silty clay loam

Btk—22 to 36 inches; silty clay loam

Bk1—36 to 41 inches; silt loam

Bk2—41 to 65 inches; loam

### Minor Components

Raku and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils average over 35 percent clay in the profile.

Manzanst and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils average over 35 percent clay in the profile and lack a thick, dark surface layer.

### Major Uses

Irrigated cropland and wildlife habitat

## CpB—Calemore silt loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the central part of the county north of Branson.

### Map Unit Composition

Calemore and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### **Calemore soils**

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Parent material:* Loess mixed with alluvium

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 10.8 inches (high)

*Shrink-swell potential:* About 3.0 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, winterfat, American vetch, buffalograss, purple prairieclover, scarlet globemallow, sedge

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

#### *Typical Profile:*

A—0 to 7 inches; silt loam

Bt1—7 to 11 inches; silty clay loam

Bt2—11 to 20 inches; silty clay loam

Btk1—20 to 36 inches; clay loam

Btk2—36 to 42 inches; silty clay loam

Bk—42 to 65 inches; silt loam

#### **Minor Components**

Wiley and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils do not have a thick dark surface layer.

Baca and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains  
*Slope:* 0 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils average more than 35 percent clay content.

#### Raku and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Depressions, drainageways, plains  
*Position on landform:* Talf, dip  
*Slope:* 0 to 2 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils average more than 35 percent clay content.

#### Major Uses

Nonirrigated cropland, rangeland, wildlife habitat

## CpC—Capulin loam, 1 to 6 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 70  
*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)  
*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)  
*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)  
*Frost-free period:* 120 to 150 days  
*Note:* Located on fans and basalt mesas along the New Mexico state line from Trinidad to the Baca County line.

#### Map Unit Composition

Capulin and similar soils: 85 percent  
 Minor components: 15 percent

#### Component Descriptions

##### Capulin soils

*Landscape:* Foothills, lava plateaus  
*Landform:* Fans, lava plateaus  
*Position on landform:* Rise  
*Parent material:* Alluvium derived from basalt and sedimentary rock  
*Slope:* 1 to 6 percent  
*Aspect:* All aspects

*Shape (down/across):* Linear/linear  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)  
*Available water capacity:* About 9.5 inches (high)  
*Shrink-swell potential:* About 2.1 percent (low)  
*Calcium carbonate maximum:* About 25 percent  
*Gypsum maximum:* None  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 1 (slightly sodic)  
*Ecological site:* Basalt Loam  
*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, sideoats grama, winterfat, fourwing saltbush, American vetch, bottlebrush squirreltail, yucca  
*Land capability subclass (irrigated):* 4e  
*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 8 inches; loam  
Bt1—8 to 17 inches; clay loam  
Bt2—17 to 32 inches; clay loam  
Bk1—32 to 38 inches; clay loam  
Bk2—38 to 60 inches; gravelly loam

**Minor Components**

Torreón and similar soils

*Composition:* About 10 percent  
*Landscape:* Lava plateaus, foothills  
*Landform:* Lava plateaus, fans, fans  
*Position on landform:* Rise  
*Slope:* 1 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Basalt Loam  
*Distinguishing characteristics:* These soils average more than 35 percent clay content.

Ayon and similar soils

*Composition:* About 5 percent  
*Landscape:* Foothills  
*Landform:* Fans, fan remnants  
*Position on landform:* Riser  
*Slope:* 4 to 6 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/convex  
*Drainage class:* Well drained  
*Ecological site:* Basalt Breaks  
*Distinguishing characteristics:* These soils have more than 35 percent rock fragments.



### Major Uses

Rangeland, irrigated cropland

## CpT—Capulin-Torreón complex, 0 to 7 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.5 degrees C.)

*Frost-free period:* 120 to 145 days

*Note:* Located in the south-central part of the county near Trinchera.

### Map Unit Composition

Capulin and similar soils: 45 percent

Torreón and similar soils: 40 percent

Minor components: 15 percent

### Component Descriptions

#### Capulin soils

*Landscape:* Plains

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Alluvium derived from basalt and sedimentary rock

*Slope:* 0 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.5 inches (high)

*Shrink-swell potential:* About 2.1 percent (low)

*Calcium carbonate maximum:* About 25 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 1 (slightly sodic)

*Ecological site:* Basalt Loam

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, sideoats grama, winterfat, fourwing saltbush, American vetch, bottlebrush squirreltail, yucca

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

#### Typical Profile:

A—0 to 8 inches; loam

Bt1—8 to 17 inches; clay loam

Bt2—17 to 32 inches; clay loam

Bk1—32 to 38 inches; clay loam

Bk2—38 to 60 inches; gravelly loam

**Torreón soils**

*Landscape:* Plains

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Alluvium derived from basalt and sedimentary rock

*Slope:* 0 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 9.1 inches (high)

*Shrink-swell potential:* About 5.9 percent (moderate)

*Calcium carbonate maximum:* About 24 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Clayey Foothill

*Potential native vegetation:* western wheatgrass, blue grama, New Mexico feathergrass, big bluestem, sideoats grama, winterfat, little bluestem, true mountain mahogany, Gambel's oak, oneseed juniper

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 7 inches; clay loam

BA—7 to 10 inches; clay

Bt—10 to 29 inches; clay

Btk—29 to 35 inches; clay

Bk1—35 to 45 inches; cobbly clay loam

Bk2—45 to 64 inches; cobbly clay loam

**Minor Components**

Ayon and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Fans

*Slope:* 4 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Basalt Breaks

*Distinguishing characteristics:* These soils average more than 35 percent rock fragments.

Apache and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Lava flows

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Shallow Foothill

*Distinguishing characteristics:* These soils are less than 20 inches to basalt bedrock.

### Major Uses

Rangeland, wildlife habitat

## Ct—Breece sandy loam, 5 to 15 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 49

*Elevation:* 7,000 to 8,500 feet (2,134 to 2,592 meters)

*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)

*Mean annual air temperature:* 42 to 44 degrees F. (5.5 to 6.7 degrees C.)

*Frost-free period:* 75 to 90 days

*Note:* Located in drainageways at higher elevations of the foothills.

### Map Unit Composition

Breece and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Breece soils

*Landscape:* Foothills

*Landform:* Drainageways, fans

*Position on landform:* Rise

*Parent material:* Sandy alluvium derived from sandstone

*Slope:* 5 to 15 percent

*Aspect:* North to south

*Shape (down/across):* Concave/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 6.6 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Ponderosa Loam

*Potential native vegetation:* mountain muhly, Parry's oatgrass, big bluestem, western wheatgrass, sideoats grama, little bluestem, blue grama, bluegrass, fringed sagewort, needleandthread, prairie junegrass, sun sedge

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A1—0 to 7 inches; sandy loam

A2—7 to 45 inches; sandy loam

C—45 to 60 inches; coarse sandy loam

**Minor Components**

Collegiate and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Drainageways

*Position on landform:* Dip

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Somewhat poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have a seasonal high water table.

Trujillo and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 5 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/concave

*Drainage class:* Well drained

*Ecological site:* Sandy Foothill

*Distinguishing characteristics:* These soils average more than 18 percent clay and have a developed subsoil.

**Major Uses**

Rangeland, hay and pasture, wildlife habitat

**CwC—Cumulic Cryaquolls, clay, 2 to 5 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 7,500 to 9,000 feet (2,286 to 2,743 meters)

*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)

*Mean annual air temperature:* 36 to 42 degrees F. (2.0 to 5.6 degrees C.)

*Frost-free period:* 50 to 75 days

*Note:* Located in drainageways and depressions in the mountains and on high basalt mesas.

**Map Unit Composition**

Cumulic Cryaquolls and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Cumulic Cryaquolls soils**

*Landscape:* Mountains, lava plateaus

*Landform:* Flood plains, drainageways

*Position on landform:* Dip, tread

*Parent material:* Clayey alluvium

*Slope:* 2 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Concave/concave  
*Depth class:* Very deep  
*Drainage class:* Poorly drained  
*Slowest permeability:* .001 to .06 in/hr (very slow)  
*Available water capacity:* About 9.8 inches (high)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Flooding hazard:* Occasional  
*Seasonal high water table depth:* About 12 to 18 inches  
*Calcium carbonate maximum:* About 1 percent  
*Gypsum maximum:* None  
*Salinity maximum:* About 0 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Mountain Meadow  
*Potential native vegetation:* tufted hairgrass, Nebraska sedge, slender wheatgrass, water sedge, Baltic rush, willow, shrubby cinquefoil, Rocky Mountain iris  
*Land capability subclass (irrigated):* 4w  
*Land capability subclass (nonirrigated):* 4w

*Typical Profile:*

Oi—0 to 2 inches; peat  
 Ag—2 to 10 inches; clay  
 Bg—10 to 60 inches; silty clay

**Minor Components**

Histic Cryaquolls and similar soils  
*Composition:* About 10 percent  
*Landscape:* Mountains  
*Landform:* Fans  
*Position on landform:* Rise  
*Slope:* 2 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Concave/linear  
*Drainage class:* Poorly drained  
*Ecological site:* Mountain Meadow  
*Distinguishing characteristics:* These soils have a layer of peat on the surface with sand, gravel, and cobbles in the substratum.

**Major Uses**

Rangeland, pasture, wildlife habitat

**DaE—Dalerose-Rock outcrop complex, 3 to 25 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 70, 67  
*Elevation:* 5,000 to 6,000 feet (1,524 to 1,828 meters)  
*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
*Frost-free period:* 125 to 155 days  
*Note:* Located in the eastern half of the county from Branson to the Baca County line.

### Map Unit Composition

Daleroose and similar soils: 75 percent

Rock outcrop: 15 percent

Minor components: 10 percent

### Component Descriptions

#### Daleroose soils

*Landscape:* Plains, canyonlands

*Landform:* Scarps

*Position on landform:* Head slope

*Parent material:* Slope alluvium and residuum weathered from sandstone

*Slope:* 3 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 2 percent subrounded cobbles, about 3 percent subrounded medium and coarse gravel

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.0 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandstone Breaks

*Potential native vegetation:* little bluestem, prairie sandreed, sideoats grama, blue grama, sand bluestem, needleandthread, big bluestem, chokecherry, golden currant, prairie junegrass, purple prairieclover, western wheatgrass, spreading buckwheat

*Land capability subclass (nonirrigated):* 7s

#### Typical Profile:

A—0 to 5 inches; gravelly fine sandy loam

Bk—5 to 10 inches; gravelly loam

R—10 to 60 inches; bedrock

#### Rock outcrop

*Description:* Rock outcrop consists of areas of exposed Dakota sandstone.

*Landscape:* Plains, canyonlands

*Landform:* Scarps

*Parent material:* Sandstone

*Slope:* 3 to 25 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

#### Minor Components

Chacuaco and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Interfluves, ridges

*Position on landform:* Rise  
*Slope:* 3 to 7 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils are 20 to 40 inches deep to sandstone bedrock.

### Major Uses

Rangeland, wildlife habitat

## De—Davtone loam, 3 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 9,000 to 9,700 feet (2,743 to 2,957 meters)  
*Mean annual precipitation:* 22 to 26 inches (559 to 660 millimeters)  
*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.6 degrees C.)  
*Frost-free period:* 60 to 75 days  
*Note:* Located along drainageways on the Fishers Peak Mesa.

### Map Unit Composition

Davtone and similar soils: 85 percent  
 Minor components: 15 percent

### Component Descriptions

#### Davtone soils

*Landscape:* Lava plateaus  
*Landform:* Drainageways, fans  
*Position on landform:* Rise, dip  
*Parent material:* Loamy alluvium  
*Slope:* 3 to 9 percent  
*Aspect:* All aspects  
*Shape (down/across):* Concave/linear  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)  
*Available water capacity:* About 7.2 inches (moderate)  
*Shrink-swell potential:* About 2.1 percent (low)  
*Calcium carbonate maximum:* None  
*Gypsum maximum:* None  
*Salinity maximum:* About 0 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Subalpine Loam  
*Potential native vegetation:* Thurber's fescue, Parry's danthonia, Arizona fescue, western wheatgrass, elk sedge, mountain brome, mountain muhly, shrubby cinquefoil, slender wheatgrass, showy cinquefoil, fringed sagewort  
*Land capability subclass (nonirrigated):* 6e



*Typical Profile:*

- A—0 to 16 inches; loam
- AB—16 to 23 inches; sandy clay loam
- Bt—23 to 38 inches; gravelly clay loam
- BC—38 to 64 inches; very gravelly loam

**Minor Components**

## Groomer and similar soils

- Composition:* About 10 percent
- Landscape:* Lava plateaus
- Landform:* Fan remnants
- Position on landform:* Rise
- Slope:* 6 to 9 percent
- Aspect:* All aspects
- Shape (down/across):* Linear/linear
- Drainage class:* Well drained
- Ecological site:* Subalpine Loam
- Distinguishing characteristics:* These soils average more than 35 percent clay content.

## Embargo and similar soils

- Composition:* About 5 percent
- Landscape:* Lava plateaus
- Landform:* Fans
- Position on landform:* Rise
- Slope:* 3 to 9 percent
- Aspect:* All aspects
- Shape (down/across):* Linear/linear
- Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic
- Drainage class:* Well drained
- Ecological site:* Subalpine Loam
- Distinguishing characteristics:* These soils are 20 to 40 inches deep to basalt bedrock and average more than 35 percent clay content.

**Major Uses**

Rangeland, wildlife habitat

**DFV—Fuera-Dargol-Vamer complex, 10 to 45 percent slopes****Map Unit Setting**

- Major Land Resource Area:* 49
- Elevation:* 7,500 to 9,000 feet (2,286 to 2,743 meters)
- Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)
- Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)
- Frost-free period:* 70 to 100 days
- Note:* Located on steep north-facing hillsides in the foothills.

**Map Unit Composition**

Fuera and similar soils: 35 percent

Dargol and similar soils: 30 percent  
 Vamer and similar soils: 20 percent  
 Minor components: 15 percent

### Component Descriptions

#### Fuera soils

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope, base slope

*Parent material:* Alluvium and colluvium derived from shale and siltstone

*Slope:* 10 to 45 percent

*Aspect:* West to east

*Shape (down/across):* Linear/convex

*Surface fragments:* About 8 percent subrounded gravel

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 7.3 inches (moderate)

*Shrink-swell potential:* About 3.8 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica

*Potential native vegetation:*

Common trees: ponderosa pine, Rocky Mountain Douglas fir, white fir

Other plants: mountain muhly, Arizona fescue, nodding brome, Parry's danthonia, bluegrass, common juniper, elk sedge, Gambel's oak, kinnikinnick, pine dropseed, prairie junegrass

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 7 inches; cobbly loam

E and Bt—7 to 10 inches; cobbly loam

E and Bt—10 to 11 inches; cobbly clay loam

Bt1—11 to 27 inches; cobbly clay

Bt2—27 to 47 inches; cobbly clay

C—47 to 60 inches; cobbly clay

#### Dargol soils

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, side slope

*Parent material:* Slope alluvium and residuum weathered from shale and siltstone

*Slope:* 10 to 45 percent

*Aspect:* West to east

*Shape (down/across):* Linear/linear

*Surface fragments:* About 15 percent subrounded gravel, about 4 percent subrounded cobbles, about 1 percent subrounded stones

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 6.1 percent (high)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica

*Potential native vegetation:*

Common trees: ponderosa pine, Rocky Mountain Douglas fir, white fir

Other plants: mountain muhly, Arizona fescue, nodding brome, Parry's danthonia, common juniper, elk sedge, Gambel's oak, kinnikinnick, pine dropseed, prairie junegrass, western wheatgrass

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oe—0 to 1 inch; moderately decomposed plant material

E—1 inch to 6 inches; loam

Bt1—6 to 10 inches; clay

Bt2—10 to 29 inches; clay

R—29 to 60 inches; bedrock

### **Vamer soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Interfluve, base slope

*Parent material:* Slope alluvium and residuum weathered from siltstone over sandstone

*Slope:* 10 to 40 percent

*Aspect:* West to east

*Shape (down/across):* Linear/linear

*Surface fragments:* About 2 percent subangular cobbles, about 1 percent subangular stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.6 inches (very low)

*Shrink-swell potential:* About 6.0 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: ponderosa pine, Rocky Mountain Douglas fir, white fir

Other plants: mountain muhly, Arizona fescue, nodding brome, western wheatgrass, Gambel's oak, little bluestem, Parry's danthonia, pine dropseed, prairie junegrass

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oi—0 to 1 inch; slightly decomposed plant material

A—1 inch to 3 inches; fine sandy loam

E—3 to 7 inches; fine sandy loam

Bt—7 to 16 inches; clay  
 R—16 to 60 inches; bedrock

### Minor Components

#### Rock outcrop

*Composition:* About 5 percent  
*Landscape:* Foothills  
*Landform:* Scarps  
*Slope:* 15 to 45 percent  
*Aspect:* All aspects  
*Depth to restrictive feature:* 0 inches to bedrock, lithic  
*Distinguishing characteristics:* Rock outcrop consists of areas of exposed sandstone or siltstone from the Raton formation.

#### Saruche and similar soils

*Composition:* About 5 percent  
*Landscape:* Foothills  
*Landform:* Hills  
*Position on landform:* Head slope, side slope  
*Slope:* 10 to 45 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/convex  
*Depth to restrictive feature:* 8 to 20 inches to bedrock, paralithic  
*Drainage class:* Well drained  
*Ecological site:* Shrubby Foothill  
*Distinguishing characteristics:* These soils are less than 20 inches deep to soft shale bedrock.

#### Stout and similar soils

*Composition:* About 5 percent  
*Landscape:* Foothills  
*Landform:* Hills  
*Position on landform:* Interfluvium, head slope  
*Slope:* 10 to 30 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii  
*Distinguishing characteristics:* These soils are similar to Vamer but have less than 35 percent clay content and more sand in the profile.

### Major Uses

Woodland, livestock grazing, wildlife habitat

## DH—Davtong-Histic Cryaquolls complex, 2 to 5 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)  
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)

*Frost-free period:* 60 to 75 days

*Note:* Located on fans in the western part of the county near Stonewall, Torres, and Cucharas Pass.

### **Map Unit Composition**

Davtone and similar soils: 45 percent

Histic Cryaquolls and similar soils: 40 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Davtone soils**

*Landscape:* Mountains

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Alluvium derived from sandstone

*Slope:* 2 to 5 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 8.0 inches (moderate)

*Shrink-swell potential:* About 1.8 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy Park

*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, fringed sagewort, mountain brome, Sandberg bluegrass, Letterman's needlegrass, Griffith wheatgrass, American vetch, prairie junegrass

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

#### *Typical Profile:*

A—0 to 19 inches; loam

AB—19 to 30 inches; sandy clay loam

Bt1—30 to 41 inches; cobbly sandy clay loam

Bt2—41 to 48 inches; gravelly sandy clay loam

C—48 to 72 inches; very gravelly sandy loam

#### **Histic Cryaquolls soils**

*Landscape:* Mountains

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Sandy and gravelly alluvium

*Slope:* 2 to 5 percent

*Aspect:* Northwest to southeast

*Shape (down/across):* Concave/linear

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 6.0 inches (low)

*Shrink-swell potential:* About 1.7 percent (low)

*Seasonal high water table depth:* About 6 to 18 inches

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Mountain Meadow

*Potential native vegetation:* tufted hairgrass, Nebraska sedge, slender wheatgrass, water sedge, alpine timothy, Baltic rush, shrubby cinquefoil, Rocky Mountain iris

*Land capability subclass (irrigated):* 5w

*Land capability subclass (nonirrigated):* 5w

*Typical Profile:*

Oi—0 to 6 inches; peat

Oe—6 to 10 inches; moderately decomposed plant material

A—10 to 20 inches; cobbly sandy loam

AB—20 to 29 inches; very cobbly sandy loam

Bg—29 to 60 inches; very cobbly sandy loam

### **Minor Components**

Groomer and similar soils

*Composition:* About 10 percent

*Landscape:* Mountains

*Landform:* Fan remnants

*Position on landform:* Rise

*Slope:* 2 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy Park

*Distinguishing characteristics:* These soils average more than 35 percent clay content.

Cumulic Cryaquolls and similar soils

*Composition:* About 5 percent

*Landscape:* Mountains

*Landform:* Flood plains, drainageways

*Position on landform:* Tread, dip

*Slope:* 2 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils average more than 35 percent clay content and have a seasonal high water table.

### **Major Uses**

Rangeland, hay and pasture, wildlife habitat

## **Dm—Demayo very cobbly clay loam, 10 to 30 percent slopes, stony**

### **Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 150 days

*Note:* Located in the southeastern part of the county on the Mesa de Mayo and Tecolote Mesas.

### **Map Unit Composition**

Demayo and similar soils: 85 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Demayo soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus, cinder cones

*Position on landform:* Side slope

*Parent material:* Slope alluvium and residuum weathered from basalt

*Slope:* 10 to 30 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 10 percent subrounded cobbles, about 5 percent subrounded stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 1.3 inches (very low)

*Shrink-swell potential:* About 2.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Foothill

*Potential native vegetation:* little bluestem, sideoats grama, western wheatgrass, blue grama, true mountain mahogany, mountain muhly, New Mexico feathergrass, needleandthread, twoneedle pinyon, Gambel's oak, oneseed juniper, Rocky Mountain juniper

*Land capability subclass (nonirrigated):* 7s

#### *Typical Profile:*

A—0 to 5 inches; very cobbly clay loam



Bw—5 to 12 inches; very cobbly clay loam

R—12 to 22 inches; bedrock

### Minor Components

Apache and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Slope:* 10 to 30 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Shallow Foothill

*Distinguishing characteristics:* These soils average less than 35 percent rock fragments in the profile.

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Slope:* 10 to 30 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of ridges and escarpments of basalt

Eguaje and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Slope:* 10 to 20 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Basalt Breaks

*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

### Major Uses

Rangeland, wildlife habitat

## Ds—Des Moines-Rock outcrop complex, 15 to 50 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 7,000 to 8,000 feet (2,134 to 2,438 meters)

*Mean annual precipitation:* 16 to 20 inches (407 to 508 millimeters)

*Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)

*Frost-free period:* 90 to 110 days

*Note:* Located at Saddle Rock near Branson in the south-central part of the county.

### Map Unit Composition

Des Moines and similar soils: 85 percent

Rock outcrop: 15 percent

Minor components:

### Component Descriptions

#### Des Moines soils

*Landscape:* Lava plateaus

*Landform:* Lava plateaus, mountain slopes

*Position on landform:* Mountaintop

*Parent material:* Colluvium and residuum weathered from basalt

*Slope:* 15 to 50 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 5 percent subrounded stones, about 15 percent subrounded cobbles

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 3.4 inches (low)

*Shrink-swell potential:* About 3.2 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Ponderosa Loam

*Potential native vegetation:*

Common trees: ponderosa pine

Other plants: Arizona fescue, blue grama, Parry's danthonia, bluegrass, Gambel's oak, mountain muhly, true mountain mahogany

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

A—0 to 4 inches; cobbly silt loam

BA—4 to 18 inches; very cobbly silty clay loam

Bt—18 to 36 inches; very stony silty clay

C—36 to 48 inches; extremely stony sandy clay loam

#### Rock outcrop

*Description:* Rock outcrop consists of ridges and near-vertical escarpments of basalt

*Landscape:* Lava plateaus

*Landform:* Scarps

*Parent material:* Basalt

*Slope:* 15 to 50 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

### Major Uses

Rangeland, wildlife habitat

## Dt—Davtone loam, 5 to 20 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.6 degrees C.)

*Frost-free period:* 60 to 75 days

*Note:* Located in the Sangre De Cristo and Spanish Peaks mountains.

### Map Unit Composition

Davtone and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Davtone soils

*Landscape:* Mountains

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Alluvium derived from sandstone

*Slope:* 5 to 20 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 8.0 inches (moderate)

*Shrink-swell potential:* About 1.8 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy Park

*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly,

western wheatgrass, fringed sagewort, mountain brome, Sandberg bluegrass,

Letterman's needlegrass, Griffith wheatgrass, American vetch, prairie junegrass

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 19 inches; loam

AB—19 to 30 inches; sandy clay loam

Bt1—30 to 41 inches; cobbly sandy clay loam

Bt2—41 to 48 inches; gravelly sandy clay loam

C—48 to 72 inches; very gravelly sandy loam

#### Minor Components

Groomer and similar soils

*Composition:* About 10 percent

*Landscape:* Mountains

*Landform:* Mountain slopes, fan remnants

*Position on landform:* Mountainbase, rise

*Slope:* 5 to 20 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy Park  
*Distinguishing characteristics:* These soils average more than 35 percent clay content.

#### Histic Cryaquolls and similar soils

*Composition:* About 3 percent  
*Landscape:* Mountains  
*Landform:* Fans  
*Position on landform:* Rise  
*Slope:* 2 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Concave/linear  
*Drainage class:* Poorly drained  
*Ecological site:* Mountain Meadow  
*Distinguishing characteristics:* These soils have a water table and a surface layer of peat.

#### Cumulic Cryaquolls and similar soils

*Composition:* About 2 percent  
*Landscape:* Mountains  
*Landform:* Flood plains, drainageways  
*Position on landform:* Dip, tread  
*Slope:* 2 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Concave/concave  
*Drainage class:* Poorly drained  
*Flooding hazard:* Occasional  
*Ecological site:* Mountain Meadow  
*Distinguishing characteristics:* These soils have a water table and average more than 35 percent clay content.

### Major Uses

Rangeland, wildlife habitat

## Dv—Feterita silt loam, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67  
*Elevation:* 4,800 to 6,100 feet (1,463 to 1,859 meters)  
*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)  
*Frost-free period:* 135 to 155 days  
*Note:* Located in playas in the eastern part of the county.

### Map Unit Composition

Feterita and similar soils: 95 percent  
 Minor components: 5 percent

## Component Descriptions

### Feterita soils

*Landscape:* Plains

*Landform:* Playas

*Position on landform:* Talf

*Parent material:* Clayey alluvium

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Depth class:* Very deep

*Drainage class:* Somewhat poorly drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 10.5 inches (high)

*Shrink-swell potential:* About 6.0 percent (moderate)

*Ponding hazard:* Occasional

*Seasonal high water table depth:* About 0 to 10 inches

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 4 (slightly sodic)

*Ecological site:* Plains Swale

*Potential native vegetation:* western wheatgrass, blue grama, green needlegrass, sun sedge, American vetch, buffalograss, winterfat

*Land capability subclass (irrigated):* 3c

*Land capability subclass (nonirrigated):* 4c

#### *Typical Profile:*

A—0 to 3 inches; silt loam

Bt—3 to 8 inches; silty clay loam

Btss—8 to 21 inches; silty clay

Btkss—21 to 35 inches; silty clay

Bkss—35 to 72 inches; silty clay loam

### Minor Components

Manzanst and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Talf

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils are not ponded and are well drained.

### Major Uses

Rangeland, wildlife habitat

## **Ec—Eguaje-Demayo complex, 1 to 12 percent slopes, stony**

### **Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 150 days

*Note:* Located in the southeastern part of the county on the Mesa de Mayo and Tecolote Mesas.

### **Map Unit Composition**

Eguaje and similar soils: 50 percent

Demayo and similar soils: 35 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Eguaje soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Parent material:* Colluvium and residuum weathered from basalt

*Slope:* 1 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 10 percent subrounded (shape or size unspecified), about 10 percent subrounded cobbles, about 7 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 5.9 inches (low)

*Shrink-swell potential:* About 2.4 percent (low)

*Calcium carbonate maximum:* About 45 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Basalt Breaks

*Potential native vegetation:* little bluestem, sideoats grama, blue grama, New Mexico feathergrass, needleandthread, true mountain mahogany, yellow Indiangrass, bottlebrush squirreltail, oneseed juniper

*Land capability subclass (nonirrigated):* 7s

#### *Typical Profile:*

A—0 to 5 inches; cobbly clay loam

Bt—5 to 14 inches; very cobbly clay loam

Btk1—14 to 19 inches; very gravelly clay loam

Btk2—19 to 28 inches; very gravelly clay loam

Bk—28 to 60 inches; very cobbly clay loam

**Demayo soils**

*Landscape:* Lava plateaus

*Landform:* Scarps

*Parent material:* Slope alluvium and/or residuum weathered from basalt

*Slope:* 1 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 10 percent subrounded cobbles, about 5 percent subrounded stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 1.3 inches (very low)

*Shrink-swell potential:* About 2.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Foothill

*Potential native vegetation:* little bluestem, sideoats grama, western wheatgrass, blue grama, true mountain mahogany, mountain muhly, New Mexico feathergrass, needleandthread, twoneedle pinyon, Gambel's oak, oneseed juniper, Rocky Mountain juniper

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A—0 to 5 inches; very cobbly clay loam

Bw—5 to 12 inches; very cobbly clay loam

R—12 to 22 inches; bedrock

**Minor Components**

Torreón and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Basalt Loam

*Distinguishing characteristics:* These soils are similar to Eguaje soils but have less than 35 percent rock fragments in the profile.

Apache and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Slope:* 5 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained



*Ecological site:* Shallow Foothill

*Distinguishing characteristics:* These soils are similar to Demayo soils but have less than 35 percent rock fragments in the profile.

### Major Uses

Rangeland, wildlife habitat

## **EL—Ellicott-Las Animas complex, 0 to 2 percent slopes, occasionally flooded**

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 4,400 to 6,000 feet (1,341 to 1,829 meters)

*Mean annual precipitation:* 13 to 16 inches (330 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in riparian areas along the Purgatoire River from Trinidad to the Otero County line. This map unit contains areas of accumulated sand and gravel adjacent to river and stream channels.

### Map Unit Composition

Ellicott and similar soils: 50 percent

Las Animas and similar soils: 35 percent

Minor components: 15 percent

### Component Descriptions

#### **Ellicott soils**

*Landscape:* River valleys

*Landform:* Low flood plains

*Position on landform:* Tread

*Parent material:* Sandy alluvium

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 5.5 inches (low)

*Shrink-swell potential:* About 0.8 percent (low)

*Flooding hazard:* Occasional

*Calcium carbonate maximum:* About 1 percent

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy Bottomland

*Potential native vegetation:* Nebraska sedge, prairie cordgrass, switchgrass, plains cottonwood, Canada wildrye, little bluestem, sand bluestem, sand dropseed, yellow Indiangrass, sandbar willow, western wheatgrass, boxelder

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

- A—0 to 7 inches; fine sandy loam
- C1—7 to 14 inches; fine sandy loam
- C2—14 to 21 inches; loamy coarse sand
- C3—21 to 31 inches; stratified fine sandy loam to loamy fine sand
- C4—31 to 40 inches; sand
- 2C5—40 to 62 inches; very gravelly sand

**Las Animas soils***Landscape:* River valleys*Landform:* Low flood plains*Position on landform:* Tread*Parent material:* Sandy alluvium*Slope:* 0 to 2 percent*Aspect:* All aspects*Shape (down/across):* Concave/linear*Depth class:* Very deep*Drainage class:* Poorly drained*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)*Available water capacity:* About 5.5 inches (low)*Shrink-swell potential:* About 1.0 percent (low)*Flooding hazard:* Occasional*Seasonal high water table depth:* About 12 to 36 inches*Calcium carbonate maximum:* About 5 percent*Gypsum maximum:* About 5 percent*Salinity maximum:* About 8 mmhos/cm (slightly saline)*Sodium adsorption ratio maximum:* About 5 (slightly sodic)*Ecological site:* Wet Meadow

*Potential native vegetation:* switchgrass, Baltic rush, western wheatgrass, Nebraska sedge, prairie cordgrass, reedgrass, sedge, vine mesquite, peachleaf willow, sandbar willow

*Land capability subclass (irrigated):* 3w*Land capability subclass (nonirrigated):* 4w*Typical Profile:*

- A—0 to 3 inches; loam
- Ckyg1—3 to 11 inches; fine sandy loam
- Cg1—11 to 23 inches; stratified sandy loam to fine sandy loam
- Ckyg2—23 to 26 inches; silt loam
- Cg2—26 to 36 inches; loamy sand
- C—36 to 65 inches; sand

**Minor Components**

Hoehne and similar soils

*Composition:* About 8 percent*Landscape:* River valleys*Landform:* Flood plains, terraces*Position on landform:* Tread*Slope:* 0 to 2 percent*Aspect:* All aspects*Shape (down/across):* Convex/linear*Drainage class:* Somewhat excessively drained*Flooding hazard:* Occasional

*Ecological site:* Sandy Bottomland

*Distinguishing characteristics:* These soils do not have a water table and have greater than 10 percent clay content.

Bloom and similar soils

*Composition:* About 7 percent

*Landscape:* River valleys

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Somewhat poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Salt Meadow

*Distinguishing characteristics:* These soils have less sand and more than 18 percent silt and clay in the profile.

#### **Major Uses**

Rangeland, wildlife habitat

### **ES—Embargo-Schwacheim complex, 1 to 9 percent slopes, stony**

#### **Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,800 to 9,700 feet (2,682 to 2,957 meters)

*Mean annual precipitation:* 22 to 26 inches (559 to 660 millimeters)

*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.6 degrees C.)

*Frost-free period:* 60 to 75 days

*Note:* Located on the Fishers Peak Mesa south of Trinidad

#### **Map Unit Composition**

Embargo and similar soils: 60 percent

Schwacheim and similar soils: 30 percent

Minor components: 10 percent

#### **Component Descriptions**

##### **Embargo soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus, swales

*Position on landform:* Dip

*Parent material:* Alluvium and residuum weathered from basalt

*Slope:* 1 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 1 percent subangular stones

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Subalpine Loam

*Potential native vegetation:* Thurber's fescue, Parry's danthonia, Arizona fescue, western wheatgrass, elk sedge, mountain brome, mountain muhly, shrubby cinquefoil, slender wheatgrass, showy cinquefoil, fringed sagewort

*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

A—0 to 7 inches; cobbly silt loam

AB—7 to 14 inches; very cobbly silt loam

Bt1—14 to 20 inches; very cobbly clay loam

Bt2—20 to 25 inches; extremely cobbly clay loam

R—25 to 60 inches; bedrock

**Schwacheim soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Parent material:* Colluvium and residuum weathered from basalt

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 15 percent subangular gravel, about 3 percent subangular cobbles, about 3 percent subangular stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.3 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Subalpine

*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, Thurber's fescue, Columbia needlegrass, Letterman's needlegrass, muttongrass, gooseberry currant, mountain brome, slender wheatgrass, western wheatgrass, fringed sagewort, pussytoes

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A1—0 to 5 inches; gravelly silt loam

A2—5 to 9 inches; very gravelly silt loam

Bw—9 to 14 inches; extremely gravelly silt loam

R—14 to 18 inches; bedrock

**Minor Components**

Groomer and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Fan remnants

*Position on landform:* Rise

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Subalpine Loam

*Distinguishing characteristics:* These soils are greater than 60 inches deep to bedrock.

**Major Uses**

Rangeland, recreation, wildlife habitat

**FcB—Wapiti clay loam, 0 to 3 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 5,500 to 6,000 feet (1,677 to 1,829 meters)

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 145 days

*Note:* Located in the irrigated areas near Hoehne. These soils have a silty and clayey surface layer formed from irrigation water.

**Map Unit Composition**

Wapiti and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Wapiti soils**

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Silty and clayey alluvium from irrigation over eolian deposits

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 10.2 inches (high)

*Shrink-swell potential:* About 2.1 percent (low)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* About 1 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

Ap—0 to 6 inches; clay loam

Bt1—6 to 14 inches; clay loam

Bt2—14 to 26 inches; clay loam

Btk—26 to 34 inches; clay loam

Bk1—34 to 43 inches; loam

Bk2—43 to 67 inches; loam

### **Minor Components**

#### **Chicosa and similar soils**

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Remnant terraces

*Position on landform:* Riser

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 14 to 30 inches to strongly contrasting textural stratification

*Drainage class:* Somewhat excessively drained

*Ecological site:* Gravel Breaks

*Distinguishing characteristics:* These soils average more than 35 percent rock fragments.

#### **Bacid and similar soils**

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey

*Distinguishing characteristics:* These soils average more than 35 percent clay content.

#### **Aquic Haplustalfs and similar soils**

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Talf, tread

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Somewhat poorly drained

*Ecological site:* Clayey

*Distinguishing characteristics:* These soils have a seasonal high water table.

### Major Uses

Irrigated cropland

### Major Management Limitations

Some areas may have horizons of sand and gravel below a depth of 60 inches. These horizons have a high percentage of calcium carbonate and can be exposed from land leveling. Gravelly layers may occur as shallow as 40 inches.

## FcC—Fort loam, 3 to 5 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 5,500 to 6,000 feet (1,677 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in the irrigated cropland areas near Hoehne.

### Map Unit Composition

Fort and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Fort soils

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Rise, tread

*Parent material:* Loamy alluvium over eolian deposits

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 10.0 inches (high)

*Shrink-swell potential:* About 2.1 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 1 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, sideoats grama, western wheatgrass, needleandthread, galleta, little bluestem, red threeawn, sand dropseed, fourwing saltbush, American vetch

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6e



*Typical Profile:*

- A—0 to 7 inches; loam
- Bt—7 to 21 inches; clay loam
- Btk—21 to 35 inches; clay loam
- Bk1—35 to 40 inches; silt loam
- Bk2—40 to 65 inches; loam

**Minor Components**

## Kimera and similar soils

- Composition:* About 5 percent
- Landscape:* Plains
- Landform:* Terraces, ridges
- Position on landform:* Head slope, side slope, tread
- Slope:* 3 to 5 percent
- Aspect:* All aspects
- Shape (down/across):* Convex/linear
- Drainage class:* Well drained
- Ecological site:* Loamy
- Distinguishing characteristics:* These soils have less sand and do not have a developed subsoil.

## Chicosa and similar soils

- Composition:* About 5 percent
- Landscape:* Plains
- Landform:* Remnant terraces
- Position on landform:* Riser
- Slope:* 3 to 5 percent
- Aspect:* All aspects
- Shape (down/across):* Linear/linear
- Depth to restrictive feature:* 14 to 30 inches to strongly contrasting textural stratification
- Drainage class:* Somewhat excessively drained
- Ecological site:* Gravel Breaks
- Distinguishing characteristics:* These soils average more than 35 percent rock fragments.

## Wapiti and similar soils

- Composition:* About 5 percent
- Landscape:* Plains
- Landform:* Terraces
- Position on landform:* Tread
- Slope:* 3 to 5 percent
- Aspect:* All aspects
- Shape (down/across):* Linear/linear
- Drainage class:* Well drained
- Ecological site:* Loamy
- Distinguishing characteristics:* These soils have a thick, dark surface layer.

**Major Uses**

Irrigated cropland

## **FcD—Fort sandy loam, 1 to 7 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the north-central part of the county and adjacent to the Purgatoire River.

### **Map Unit Composition**

Fort and similar soils: 90 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Fort soils**

*Landscape:* Plains

*Landform:* Hills, ridges, fans

*Position on landform:* Rise, head slope, side slope

*Parent material:* Alluvium and/or eolian deposits

*Slope:* 1 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.8 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, sideoats grama, little bluestem, needleandthread, sand dropseed, western wheatgrass, fourwing saltbush, American vetch

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

#### *Typical Profile:*

A—0 to 4 inches; sandy loam

BA—4 to 7 inches; loam

Bt—7 to 13 inches; clay loam

Btk—13 to 28 inches; loam

Bk—28 to 60 inches; fine sandy loam

### Minor Components

#### Kimera and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Head slope, side slope

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have less sand and do not have a developed subsoil.

#### Vonid and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Side slope, head slope

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Somewhat excessively drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils have less than 18 percent clay and more sand in the profile.

### Major Uses

Rangeland, wildlife habitat

## Fp—Fishers very cobbly loam, 15 to 45 percent slopes, very stony

### Map Unit Setting

*Major Land Resource Area:* 49

*Elevation:* 8,000 to 9,000 feet (2,438 to 2,743 meters)

*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)

*Mean annual air temperature:* 42 to 44 degrees F. (5.6 to 6.7 degrees C.)

*Frost-free period:* 60 to 90 days

*Note:* Located on steep backslopes of high elevation basalt mesas along the New Mexico state line.

### Map Unit Composition

Fishers and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Fishers soils

*Landscape:* Lava plateaus

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium derived from basalt

*Slope:* 15 to 45 percent

*Aspect:* Southwest to east

*Shape (down/across):* Linear/convex

*Surface fragments:* About 2 percent subrounded stones, about 15 percent subrounded cobbles

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 5.6 inches (low)

*Shrink-swell potential:* About 3.0 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Potential native vegetation:*

Common trees: white fir, ponderosa pine

Other plants: Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, Gambel's oak, muttongrass, prairie junegrass, New Mexico locust, true mountain mahogany, fringed sagewort

*Land capability subclass (nonirrigated):* 7e

#### *Typical Profile:*

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 inch to 5 inches; very cobbly loam

A2—5 to 9 inches; very cobbly loam

E—9 to 14 inches; very cobbly loam

Bt1—14 to 19 inches; very gravelly clay loam

Bt2—19 to 36 inches; very gravelly clay

Bt3—36 to 47 inches; very gravelly clay loam

C—47 to 60 inches; very cobbly clay loam

### **Minor Components**

Tecolote and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 15 to 35 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Distinguishing characteristics:* These soils have more sand and less than 35 percent clay in the profile.

Rubble land

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Slope:* 25 to 45 percent

*Aspect:* All aspects

*Distinguishing characteristics:* Rubble land consists of areas of accumulated stones and boulders on the surface.

### Major Uses

Woodland, livestock grazing, wildlife habitat

## FtC—Olnest loam, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the eastern part of the county east of Kim.

### Map Unit Composition

Olnest and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Olnest soils

*Landscape:* Plains

*Landform:* Plains, hills, ridges

*Position on landform:* Rise, side slope, base slope

*Parent material:* Eolian deposits and alluvium

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 8.9 inches (moderate)

*Shrink-swell potential:* About 1.8 percent (low)

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* prairie sandreed, needleandthread, sideoats grama, western wheatgrass, little bluestem, sand sagebrush, small soapweed

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4c

#### Typical Profile:

A—0 to 3 inches; loam

Bt—3 to 10 inches; sandy clay loam

Btk—10 to 21 inches; sandy clay loam

Bk1—21 to 38 inches; sandy loam

Bk2—38 to 72 inches; sandy loam

**Minor Components**

## Wapiti and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Drainageways, plains, terraces*Position on landform:* Tread, dip, talf*Slope:* 1 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Loamy (formerly Loamy Plains)*Distinguishing characteristics:* These soils have a thick dark surface layer.

## Vona and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Hills, ridges*Position on landform:* Side slope, head slope*Slope:* 2 to 5 percent*Aspect:* All aspects*Shape (down/across):* Convex/linear*Drainage class:* Somewhat excessively drained*Ecological site:* Sandy (formerly Sandy Plains)*Distinguishing characteristics:* These soils have less than 18 percent clay and a higher sand content.**Major Uses**

Nonirrigated cropland, rangeland, wildlife habitat

**FuD—Bandarito clay loam, 3 to 9 percent slopes****Map Unit Setting***Major Land Resource Area:* 49*Elevation:* 7,000 to 8,500 feet (2,134 to 2,591 meters)*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)*Frost-free period:* 70 to 100 days*Note:* Located in the western part of the foothills near major drainageways.**Map Unit Composition**

Bandarito and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Bandarito soils***Landscape:* Foothills*Landform:* Fans, valley sides*Position on landform:* Rise*Parent material:* Alluvium derived from clayey shale

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 9.5 inches (high)

*Shrink-swell potential:* About 6.9 percent (high)

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Clayey Foothill

*Potential native vegetation:* western wheatgrass, blue grama, green needlegrass, Griffith wheatgrass, bluegrass, fourwing saltbush, mountain muhly, American vetch, fringed sagewort, purple prairieclover, winterfat

*Land capability subclass (irrigated):* 4c

*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 3 inches; clay loam

Bt1—3 to 12 inches; silty clay loam

Bt2—12 to 18 inches; silty clay

Bt3—18 to 29 inches; silty clay

Btk1—29 to 35 inches; clay

Btk2—35 to 40 inches; clay

BCtk—40 to 56 inches; silty clay

Bk—56 to 66 inches; clay loam

### **Minor Components**

Molinaro and similar soils

*Composition:* About 8 percent

*Landscape:* Foothills

*Landform:* Fan remnants, valley floors

*Position on landform:* Rise, tread

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

Trujillo and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fans, drainageways

*Position on landform:* Rise

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils have less than 35 percent clay content and more sand.



**Furia and similar soils***Composition:* About 2 percent*Landscape:* Foothills*Landform:* Drainageways*Position on landform:* Dip*Slope:* 1 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Poorly drained*Flooding hazard:* Occasional*Ecological site:* Mountain Meadow*Distinguishing characteristics:* These soils have a seasonal high water table.**Major Uses**

Rangeland, hay and pasture, wildlife habitat

**FuE—Bandarito clay loam, 9 to 18 percent slopes****Map Unit Setting***Major Land Resource Area:* 49*Elevation:* 7,800 to 8,800 feet (2,377 to 2,682 meters)*Mean annual precipitation:* 18 to 23 inches (457 to 584 millimeters)*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)*Frost-free period:* 75 to 100 days*Note:* located at the base of high elevation basalt mesas along the New Mexico state line.**Map Unit Composition**

Bandarito and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Bandarito soils***Landscape:* Lava plateaus, foothills*Landform:* Fan remnants*Position on landform:* Rise*Parent material:* Alluvium derived from shale and siltstone*Slope:* 9 to 18 percent*Aspect:* West to southeast*Shape (down/across):* Linear/linear*Depth class:* Very deep*Drainage class:* Well drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 9.5 inches (high)*Shrink-swell potential:* About 6.9 percent (high)*Calcium carbonate maximum:* About 5 percent*Gypsum maximum:* None*Salinity maximum:* About 2 mmhos/cm (nonsaline)*Sodium adsorption ratio maximum:* About 2 (slightly sodic)*Ecological site:* Loamy Park

*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, western wheatgrass, Gambel's oak, Sandberg bluegrass, Letterman's needlegrass, American vetch, blue grama, fringed sagewort, prairie junegrass

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 3 inches; clay loam  
 Bt1—3 to 12 inches; silty clay loam  
 Bt2—12 to 18 inches; silty clay  
 Bt3—18 to 29 inches; silty clay  
 Btk1—29 to 35 inches; clay  
 Btk2—35 to 40 inches; clay  
 BCtk—40 to 56 inches; silty clay  
 Bk—56 to 66 inches; clay loam

**Minor Components**

Fishers and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Slope:* 9 to 18 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Distinguishing characteristics:* These soils have more than 35 percent rock fragments.

Furia and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Drainageways

*Position on landform:* Dip

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have a seasonal high water table.

**Major Uses**

Rangeland, wildlife habitat

**FW—Bandarito-Fishers complex, 5 to 20 percent slopes, stony**

**Map Unit Setting**

*Major Land Resource Area:* 49

*Elevation:* 7,800 to 8,800 feet (2,377 to 2,682 meters)

*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)

*Mean annual air temperature:* 42 to 46 degrees F. (5.6 to 8.0 degrees C.)

*Frost-free period:* 60 to 100 days

*Note:* Located at the base of high elevation basalt mesas along the New Mexico state line.

### Map Unit Composition

Bandarito and similar soils: 45 percent

Fishers and similar soils: 40 percent

Minor components: 15 percent

### Component Descriptions

#### Bandarito soils

*Landscape:* Lava plateaus, foothills

*Landform:* Fan remnants

*Position on landform:* Rise

*Parent material:* Alluvium derived from shale and siltstone

*Slope:* 5 to 18 percent

*Aspect:* West to east

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 9.5 inches (high)

*Shrink-swell potential:* About 6.9 percent (high)

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy Park

*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, western wheatgrass, Gambel's oak, Sandberg bluegrass, Letterman's needlegrass, American vetch, blue grama, fringed sagewort, prairie junegrass

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 3 inches; clay loam

Bt1—3 to 12 inches; silty clay loam

Bt2—12 to 18 inches; silty clay

Bt3—18 to 29 inches; silty clay

Btk1—29 to 35 inches; clay

Btk2—35 to 40 inches; clay

BCtk—40 to 56 inches; silty clay

Bk—56 to 66 inches; clay loam

#### Fishers soils

*Landscape:* Lava plateaus

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Colluvium derived from basalt

*Slope:* 5 to 20 percent

*Aspect:* West to east

*Shape (down/across):* Convex/linear

*Surface fragments:* About 2 percent subangular stones, about 15 percent subrounded cobbles

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 5.6 inches (low)

*Shrink-swell potential:* About 3.0 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Potential native vegetation:*

Common trees: white fir, ponderosa pine

Other plants: Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, Gambel's oak, muttongrass, prairie junegrass, New Mexico locust, true mountain mahogany, fringed sagewort

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oe—0 to 1 inch; moderately decomposed plant material

A1—1 inch to 5 inches; very cobbly loam

A2—5 to 9 inches; very cobbly loam

E—9 to 14 inches; very cobbly loam

Bt1—14 to 19 inches; very gravelly clay loam

Bt2—19 to 36 inches; very gravelly clay

Bt3—36 to 47 inches; very gravelly clay loam

C—47 to 60 inches; very cobbly clay loam

**Minor Components**

Trujillo and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils have less than 35 percent clay content and more sand.

Furia and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Drainageways

*Position on landform:* Dip

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have a seasonal high water table.

### Major Uses

Woodland, rangeland, wildlife habitat

## FyB—Furia clay loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 49

*Elevation:* 6,500 to 8,000 feet (1,981 to 2,438 meters)

*Mean annual precipitation:* 16 to 20 inches (406 to 508 millimeters)

*Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)

*Frost-free period:* 70 to 90 days

*Note:* Located along major drainageways west of Trinidad in the foothills.

### Map Unit Composition

Furia and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Furia soils

*Landscape:* Foothills

*Landform:* Flood plains, drainageways

*Position on landform:* Tread, dip

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.7 inches (high)

*Shrink-swell potential:* About 4.0 percent (moderate)

*Flooding hazard:* Occasional

*Seasonal high water table depth:* About 6 to 18 inches

*Calcium carbonate maximum:* About 2 percent

*Gypsum maximum:* None

*Salinity maximum:* About 1 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 1 (slightly sodic)

*Ecological site:* Mountain Meadow

*Potential native vegetation:* Nebraska sedge, tufted hairgrass, water sedge, western wheatgrass, slender wheatgrass, Baltic rush, willow, shrubby cinquefoil

*Land capability subclass (irrigated):* 4w

*Land capability subclass (nonirrigated):* 4w

#### Typical Profile:

A—0 to 4 inches; clay loam

Ag—4 to 16 inches; clay loam

Bg1—16 to 32 inches; silty clay loam

Bg2—32 to 43 inches; silty clay

Cg—43 to 72 inches; clay loam

### **Minor Components**

Bandarito and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fan remnants, valley sides

*Position on landform:* Rise

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Well drained

*Ecological site:* Clayey Foothill

*Distinguishing characteristics:* These soils do not have a water table.

Molinaro and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fan remnants, terraces, valley floors

*Position on landform:* Rise, tread

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils do not have a water table and average less than 35 percent clay content.

Collegiate and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Flood plains

*Position on landform:* Tread

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Somewhat poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have stratified sand and gravel at various depths.

### **Major Uses**

Rangeland, hay and pasture, wildlife habitat

## **GA—Gulnare-Allens Park complex, 5 to 35 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 49

*Elevation:* 6,800 to 8,500 feet (2,073 to 2,591 meters)

*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)

*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)

*Frost-free period:* 80 to 100 days

*Note:* Located predominantly north of the Purgatoire River and west of Trinidad near Gulnare, Bon Carbo, and Weston.

### **Map Unit Composition**

Gulnare and similar soils: 50 percent

Allens Park and similar soils: 35 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Gulnare soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, side slope

*Parent material:* Slope alluvium and residuum weathered from sandstone

*Slope:* 5 to 35 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Convex/linear

*Surface fragments:* About 1 percent subrounded stones, about 2 percent subrounded cobbles, about 5 percent subangular gravel

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 2.6 inches (very low)

*Shrink-swell potential:* About 1.8 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: ponderosa pine

Other plants: mountain muhly, Arizona fescue, Parry's danthonia, western wheatgrass, common juniper, kinnikinnick, little bluestem, nodding brome, pine dropseed, prairie junegrass, Sandberg bluegrass, Gambel's oak, muttongrass

*Land capability subclass (nonirrigated):* 7e

#### *Typical Profile:*

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 5 inches; loam

Bt1—5 to 13 inches; gravelly clay loam

Bt2—13 to 18 inches; gravelly sandy clay loam

Cr—18 to 19 inches; bedrock

R—19 to 60 inches; bedrock

#### **Allens Park soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Base slope, side slope

*Parent material:* Slope alluvium and residuum weathered from sandstone



*Slope:* 5 to 25 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Surface fragments:* About 1 percent subrounded stones

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.1 inches (low)

*Shrink-swell potential:* About 1.6 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: ponderosa pine, Rocky Mountain Douglas fir

Other plants: mountain muhly, Arizona fescue, Parry's danthonia, common juniper, Gambel's oak, kinnikinnick, little bluestem, muttongrass, nodding brome, pine dropseed, Sandberg bluegrass

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

E—0 to 5 inches; sandy loam

B/E—5 to 10 inches; sandy loam

Bt1—10 to 16 inches; sandy clay loam

Bt2—16 to 20 inches; sandy clay loam

BC—20 to 24 inches; gravelly sandy clay loam

Cr—24 to 26 inches; bedrock

R—26 to 60 inches; bedrock

### **Minor Components**

Stout and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, interfluvium

*Slope:* 5 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Somewhat excessively drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are similar to Gulnare soils but have more sand and less than 18 percent clay content.

Littlepine and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fan remnants, hills

*Position on landform:* Base slope, side slope, rise

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

### Major Uses

Woodland, wildlife habitat

## GC—Groomer-Cucharas complex, 5 to 35 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 40 to 43 degrees F. (4.2 to 6.0 degrees C.)

*Frost-free period:* 50 to 70 days

*Note:* Located in open grassland areas between North Lake and Cucharas Pass in the western part of the county.

### Map Unit Composition

Groomer and similar soils: 50 percent

Cucharas and similar soils: 40 percent

Minor components: 10 percent

### Component Descriptions

#### Groomer soils

*Landscape:* Mountains

*Landform:* Mountain slopes, fan remnants

*Position on landform:* Mountainbase, rise

*Parent material:* Alluvium and slope alluvium derived from shale and siltstone

*Slope:* 5 to 25 percent

*Aspect:* East to west

*Shape (down/across):* Linear, convex/convex

*Surface fragments:* About 1 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 8.7 inches (moderate)

*Shrink-swell potential:* About 5.8 percent (moderate)

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* None

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Subalpine Loam

*Potential native vegetation:* Thurber's fescue, Parry's danthonia, Arizona fescue, western wheatgrass, elk sedge, mountain brome, mountain muhly, shrubby cinquefoil, slender wheatgrass, showy cinquefoil, fringed sagewort

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 10 inches; loam

Bt1—10 to 21 inches; cobbly clay loam



Figure 8.—A typical landscape of Groomer-Cucharas complex, 5 to 35 percent slopes.

Bt2—21 to 39 inches; clay  
 Bt3—39 to 50 inches; gravelly clay  
 BCk—50 to 66 inches; gravelly silty clay loam

#### **Cucharas soils**

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Slope alluvium and residuum weathered from clayey shale

*Slope:* 10 to 35 percent

*Aspect:* East to west

*Shape (down/across):* Linear/convex

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 5.2 inches (low)

*Shrink-swell potential:* About 6.9 percent (high)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy Park

*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, western wheatgrass, Gambel's oak, mountain brome, Griffith wheatgrass, slender wheatgrass, American vetch, Thurber's fescue

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 10 inches; clay loam

Bt—10 to 26 inches; clay

BCt—26 to 32 inches; clay

Cr—32 to 42 inches; bedrock

### Minor Components

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Mountains

*Landform:* Scarps

*Slope:* 10 to 35 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed sandstone and siltstone.

Cumulic Cryaquolls and similar soils

*Composition:* About 5 percent

*Landscape:* Mountains

*Landform:* Drainageways

*Position on landform:* Dip

*Slope:* 2 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have a seasonal high water table.

### Major Uses

Rangeland, wildlife habitat

## **GgB—Glenberg fine sandy loam, 0 to 3 percent slopes, occasionally flooded**

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,400 to 5,500 feet (1,341 to 1,677 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located along major drainageways in the north-central and northeastern parts of the county.

### Map Unit Composition

Glenberg and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Glenberg soils

*Landscape:* River valleys

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Parent material:* Sandy alluvium

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 6.8 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Flooding hazard:* Occasional

*Calcium carbonate maximum:* About 3 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Sandy Bottomland

*Potential native vegetation:* sand bluestem, prairie sandreed, switchgrass, blue grama, buckwheat, little bluestem, needleandthread, sand dropseed, sand sagebrush, yellow Indiangrass, western wheatgrass

*Land capability subclass (irrigated):* 3s

*Land capability subclass (nonirrigated):* 6c

#### Typical Profile:

A—0 to 5 inches; fine sandy loam

C1—5 to 9 inches; fine sandy loam

C2—9 to 60 inches; stratified loamy fine sand to loam

#### Minor Components

Haversid and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Saline Overflow

*Distinguishing characteristics:* These soils have more silt and greater than 18 percent clay content.

Mauricanyon and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have greater than 18 percent clay content and a thick, dark surface.

### Major Uses

Rangeland, wildlife habitat

## GmE—Aquic Dystrocryepts

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 10,500 to 13,000 feet (3,200 to 3,962 meters)

*Mean annual precipitation:* 30 to 40 inches (762 to 1,016 millimeters)

*Mean annual air temperature:* 30 to 36 degrees F. (-1.0 to 2.0 degrees C.)

*Frost-free period:* 10 to 40 days

*Note:* Located in cirque basins in the Sangre de Cristo mountains.

### Map Unit Composition

Aquic Dystrocryepts and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Aquic Dystrocryepts soils

*Landscape:* Mountains

*Landform:* Cirques

*Position on landform:* Mountaintop

*Parent material:* Colluvium and till derived from monzonite and diorite

*Slope:* 5 to 30 percent

*Aspect:* North to south

*Shape (down/across):* Concave/concave

*Surface fragments:* About 1 percent subrounded stones, about 20 percent subrounded cobbles, about 20 percent subrounded gravel

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 5.4 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Seasonal high water table depth:* About 24 to 36 inches

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Alpine Meadow

*Potential native vegetation:* willow, kobresia, tufted hairgrass, arctic bluegrass, alpine clover, alpine timothy, sedge, cinquefoil, Parry's clover, shrubby cinquefoil

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A1—0 to 11 inches; cobbly loam

A2—11 to 20 inches; gravelly loam

Bw1—20 to 34 inches; gravelly loam

Bw2—34 to 60 inches; very gravelly loam

### Minor Components

Moran and similar soils

*Composition:* About 10 percent

*Landscape:* Mountains

*Landform:* Mountains

*Position on landform:* Mountaintop

*Slope:* 5 to 30 percent

*Aspect:* North to south

*Shape (down/across):* Convex/linear

*Drainage class:* Somewhat excessively drained

*Ecological site:* Alpine Slopes

*Distinguishing characteristics:* These soils do not have a water table.

### Major Uses

Grazing land, wildlife habitat

## Gn—Angostura very stony loam, 20 to 65 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 9,000 to 10,800 feet (2,743 to 3,292 meters)

*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)

*Mean annual air temperature:* 37 to 40 degrees F. (3.0 to 4.5 degrees C.)

*Frost-free period:* 40 to 70 days

*Note:* Located on upper mountain slopes of the Sangre de Cristo mountains and the Spanish Peaks.

### Map Unit Composition

Angostura and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Angostura soils

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium and till derived from diorite and monzonite

*Slope:* 20 to 65 percent

*Aspect:* North to south



*Shape (down/across):* Linear/linear  
*Surface fragments:* About 15 percent subrounded stones  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)  
*Available water capacity:* About 5.5 inches (low)  
*Shrink-swell potential:* About 1.4 percent (low)  
*Calcium carbonate maximum:* None  
*Gypsum maximum:* None  
*Salinity maximum:* About 0 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Engelmann's spruce-Subalpine fir  
*Potential native vegetation:*  
Common trees: subalpine fir, Engelmann's spruce, Rocky Mountain Douglas fir  
Other plants: grouse whortleberry, bluegrass, nodding brome, Arizona fescue,  
common juniper, Oregongrape, russet buffaloberry, Thurber's fescue, Woods'  
rose  
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*  
Oi—0 to 1 inch; slightly decomposed plant material  
E—1 inch to 12 inches; very stony loam  
B/E—12 to 24 inches; very cobbly loam  
Bt1—24 to 46 inches; very cobbly clay loam  
Bt2—46 to 61 inches; very cobbly clay loam  
BC—61 to 72 inches; very gravelly loam

### **Minor Components**

Fallriver and similar soils  
*Composition:* About 5 percent  
*Landscape:* Mountains  
*Landform:* Mountain slopes  
*Position on landform:* Mountainflank  
*Slope:* 20 to 65 percent  
*Aspect:* North to south  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Engelmann's spruce-Subalpine fir  
*Distinguishing characteristics:* These soils average more than 50 percent sand  
and are very strongly acid pH.

Leadville and similar soils  
*Composition:* About 5 percent  
*Landscape:* Mountains  
*Landform:* Mountain slopes  
*Position on landform:* Mountainflank  
*Slope:* 20 to 65 percent  
*Aspect:* North to south  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Engelmann's spruce-Subalpine fir  
*Distinguishing characteristics:* These soils average more than 45 percent sand  
and formed from red sandstone.

### Major Uses

Woodland, recreation, wildlife habitat

## GP—Gravel Pits

### Map Unit Setting

*Major Land Resource Area:* 67, 49, 69

*Elevation:* 5,500 to 7,800 feet (1,677 to 2,378 meters)

*Mean annual precipitation:* 14 to 18 inches (356 to 457 millimeters)

*Mean annual air temperature:* 42 to 52 degrees F. (5.6 to 11.0 degrees C.)

*Frost-free period:* 70 to 145 days

*Note:* Located on gravel terraces and fans bordering major drainageways near Trinidad and in the foothills.

### Map Unit Composition

Pits, gravel: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Pits, gravel

*Landscape:* Foothills

*Landform:* Terraces, fan remnants

*Position on landform:* Riser, tread

*Parent material:* Sandy and gravelly alluvium

*Slope:* 5 to 25 percent

*Aspect:* All aspects

*Slowest permeability:* Greater than 20 in/hr (very rapid)

*Available water capacity:* About 0.6 inches (very low)

*Land capability subclass (nonirrigated):* 7

#### Minor Components

Chicosa and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fan remnants

*Position on landform:* Tread

*Slope:* 5 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 14 to 30 inches to strongly contrasting textural stratification

*Drainage class:* Somewhat excessively drained

*Ecological site:* Gravelly Foothill

*Distinguishing characteristics:* These soils have not been excavated and are not as sandy in the top 20 inches.

### Major Uses

Source of sand and gravel

## **GR—Gulnare-Rock outcrop complex, 15 to 50 percent slopes, very stony**

### **Map Unit Setting**

*Major Land Resource Area:* 49

*Elevation:* 7,200 to 9,000 feet (2,195 to 2,743 meters)

*Mean annual precipitation:* 17 to 23 inches (432 to 584 millimeters)

*Mean annual air temperature:* 42 to 46 degrees F. (5.6 to 8.0 degrees C.)

*Frost-free period:* 80 to 100 days

*Note:* Located north of the Purgatoire River and west of Trinidad near Gulnare, Bon Carbo, and Weston.

### **Map Unit Composition**

Gulnare and similar soils: 60 percent

Rock outcrop: 25 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Gulnare soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope, head slope

*Parent material:* Slope alluvium and residuum weathered from sandstone

*Slope:* 15 to 50 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Convex/linear

*Surface fragments:* About 5 percent subangular gravel, about 2 percent subrounded cobbles, about 1 percent subrounded stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 2.6 inches (very low)

*Shrink-swell potential:* About 1.8 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: ponderosa pine

Other plants: mountain muhly, Arizona fescue, Parry's danthonia, western wheatgrass, common juniper, kinnikinnick, little bluestem, nodding brome, pine dropseed, prairie junegrass, Sandberg bluegrass, Gambel's oak, muttongrass

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 5 inches; loam  
 Bt1—5 to 13 inches; gravelly clay loam  
 Bt2—13 to 18 inches; gravelly sandy clay loam  
 Cr—18 to 19 inches; bedrock  
 R—19 to 60 inches; bedrock

### **Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed sandstone from the Poison Canyon formation.

*Landscape:* Foothills

*Landform:* Scarps

*Parent material:* Sandstone

*Slope:* 15 to 50 percent

*Aspect:* North

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

### **Minor Components**

Stout and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Interfluve, head slope

*Slope:* 15 to 50 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Somewhat excessively drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils have more than 50 percent sand and less than 18 percent clay content.

Allens Park and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Base slope

*Slope:* 15 to 50 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to sandstone bedrock.

### **Major Uses**

Woodland, wildlife habitat

## **Hn—Hoehne fine sandy loam, 0 to 2 percent slopes, occasionally flooded**

### **Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,500 to 6,000 feet (1,676 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.7 degrees C.)

*Frost-free period:* 120 to 155 days

*Note:* Located along the Purgatoire River east of Trinidad. This map unit contains areas of accumulated sand and gravel deposits adjacent to rivers and streams.

### **Map Unit Composition**

Hoehne and similar soils: 90 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Hoehne soils**

*Landscape:* River valleys

*Landform:* Flood plains

*Position on landform:* Tread

*Parent material:* Sandy alluvium

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 7.1 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Flooding hazard:* Occasional

*Calcium carbonate maximum:* About 1 percent

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 1 (slightly sodic)

*Ecological site:* Sandy Bottomland

*Potential native vegetation:* sand bluestem, prairie sandreed, switchgrass, blue grama, buckwheat, little bluestem, needleandthread, sand dropseed, sand sagebrush, yellow Indiangrass, western wheatgrass

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4e

#### **Typical Profile:**

A—0 to 3 inches; fine sandy loam

C1—3 to 14 inches; loamy fine sand

C2—14 to 34 inches; fine sandy loam

C3—34 to 44 inches; stratified fine sandy loam to loamy fine sand

C4—44 to 60 inches; stratified loamy sand to fine sandy loam

### Minor Components

Las Animas and similar soils

*Composition:* About 5 percent

*Landscape:* River valleys

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Wet Meadow

*Distinguishing characteristics:* These soils have a seasonal high water table.

Mauricanyon, wet and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Moderately well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils average more than 18 percent clay in the profile, have a water table below 48 inches, and have thick dark surface and subsoil horizons.

### Major Uses

Irrigated cropland, rangeland, wildlife habitat

## HvA—Haversid silt loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located along major drainageways north and east of Trinidad.

### Map Unit Composition

Haversid and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Haversid soils

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Loamy alluvium derived from sandstone and shale

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.8 inches (high)

*Shrink-swell potential:* About 2.6 percent (low)

*Flooding hazard:* Rare

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 10 (slightly sodic)

*Ecological site:* Saline Overflow

*Potential native vegetation:* alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, vine mesquite, galleta, switchgrass, American vetch

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*

A—0 to 14 inches; silt loam

C1—14 to 32 inches; loam

Cyz—32 to 53 inches; stratified loam to clay loam

C2—53 to 72 inches; stratified fine sandy loam to loam

**Minor Components**

Manzanola and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Drainageways, terraces

*Position on landform:* Talf, tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Saline Overflow

*Distinguishing characteristics:* These soils have more than 35 percent clay content and a well-developed subsoil.

Glenberg and similar soils

*Composition:* About 5 percent

*Landscape:* River valleys

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Occasional

*Ecological site:* Sandy Bottomland

*Distinguishing characteristics:* These soils have less than 18 percent clay content and more sand.



### Major Uses

Irrigated cropland, rangeland, wildlife habitat

## HyD—Humbarsprings gravelly loam, 3 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 51 to 53 degrees F. (10.5 to 11.7 degrees C.)

*Frost-free period:* 135 to 155 days

*Note:* Located in the southeastern part of the county near the Tecolote Mesa.

### Map Unit Composition

Humbarsprings and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Humbarsprings soils

*Landscape:* Plains

*Landform:* Remnant fan remnants, terraces

*Position on landform:* Riser

*Parent material:* Alluvium

*Slope:* 3 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 5 percent subrounded cobbles, about 15 percent subrounded medium and coarse gravel

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 4.9 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* None

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Gravel Breaks

*Potential native vegetation:* little bluestem, sideoats grama, blue grama, big bluestem, needleandthread, prairie sandreed, switchgrass, western wheatgrass, dotted gayfeather, purple prairieclover, skunkbush sumac, winterfat

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 7 inches; gravelly loam

Bw—7 to 10 inches; gravelly loam

Bk1—10 to 22 inches; gravelly sandy clay loam

2Bk2—22 to 35 inches; gravelly sand

2Bk3—35 to 66 inches; gravelly loamy fine sand

**Minor Components**

Wapiti and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils do not have rock fragments in the profile.

Kandrix and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fan remnants, fans

*Position on landform:* Rise, tread

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils do not have a dark surface layer or rock fragments in the profile.

**Major Uses**

Rangeland, wildlife habitat, source of sand and gravel

**K2D—Kimera-Chicosa complex, 4 to 12 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 4,600 to 6,000 feet (1,402 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.4 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located adjacent to major drainageways north and east of Trinidad.

**Map Unit Composition**

Kimera and similar soils: 50 percent

Chicosa and similar soils: 35 percent

Minor components: 15 percent

**Component Descriptions****Kimera soils**

*Landscape:* Plains

*Landform:* Fan remnants

*Position on landform:* Rise

*Parent material:* Eolian deposits and/or alluvium

*Slope:* 4 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 8.6 inches (moderate)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 4 inches; loam

Bw—4 to 11 inches; loam

Bk1—11 to 38 inches; loam

Bk2—38 to 60 inches; loam

**Chicosa soils**

*Landscape:* Plains

*Landform:* Fan remnants

*Position on landform:* Riser

*Parent material:* Sandy and gravelly alluvium

*Slope:* 4 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 15 percent rounded gravel, about 5 percent rounded cobbles

*Depth class:* Very deep

*Depth to restrictive feature:* 14 to 30 inches to strongly contrasting textural stratification

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.9 inches (low)

*Shrink-swell potential:* About 1.0 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* None

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Gravel Breaks

*Potential native vegetation:* sideoats grama, little bluestem, blue grama, big bluestem, galleta, needleandthread, fourwing saltbush, hairy grama, western wheatgrass, purple prairieclover, yucca

*Land capability subclass (irrigated): 6e*

*Land capability subclass (nonirrigated): 6e*

*Typical Profile:*

A—0 to 6 inches; very cobbly loam

Bw—6 to 16 inches; very gravelly loam

BCK—16 to 28 inches; very gravelly loam

2Bk—28 to 42 inches; very gravelly sandy loam

2C—42 to 60 inches; extremely gravelly coarse sand

**Minor Components**

Oterodry and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Fan remnants, hills

*Position on landform:* Side slope, rise, head slope

*Slope:* 4 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils do not have rock fragments in the profile and have less than 18 percent clay.

Manvel and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Rise, tread

*Slope:* 4 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are similar to Kimera soils, but have more than 50 percent silt in the profile.

**Major Uses**

Rangeland, wildlife habitat, source of sand and gravel

**KI—Kandrix-Chicosa complex, 3 to 9 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 4,800 to 6,000 feet (1,463 to 1,828 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in the southeastern part of the county near the base of basalt mesas.  
Some areas have deep gullies.

### Map Unit Composition

Kandrix and similar soils: 60 percent  
Chicosa and similar soils: 30 percent  
Minor components: 10 percent

### Component Descriptions

#### Kandrix soils

*Landscape:* Plains

*Landform:* Fans, fan remnants

*Position on landform:* Rise

*Parent material:* Fine-loamy alluvium

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 9.3 inches (high)

*Shrink-swell potential:* About 2.2 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass,  
winterfat, sand dropseed, American vetch, purple prairieclover, scarlet  
globemallow, sun sedge

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 6 inches; loam

Bw—6 to 15 inches; loam

Bk1—15 to 33 inches; loam

Bk2—33 to 60 inches; loam

#### Chicosa soils

*Landscape:* Plains

*Landform:* Fan remnants, fans

*Position on landform:* Riser, rise

*Parent material:* Sandy and gravelly alluvium

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 5 percent subrounded cobbles, about 15 percent  
subrounded gravel

*Depth class:* Very deep

*Depth to restrictive feature:* 14 to 30 inches to strongly contrasting textural  
stratification

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.3 inches (low)

*Shrink-swell potential:* About 0.5 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* None

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Gravel Breaks

*Potential native vegetation:* little bluestem, sideoats grama, blue grama, big bluestem, needleandthread, prairie sandreed, switchgrass, western wheatgrass, dotted gayfeather, purple prairieclover, skunkbush sumac, winterfat

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 6 inches; gravelly loam

Bw—6 to 14 inches; very gravelly loam

2Bk1—14 to 19 inches; extremely gravelly sandy loam

2Bk2—19 to 29 inches; extremely gravelly sandy loam

2C—29 to 70 inches; extremely gravelly loamy sand

### **Minor Components**

Wiley and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains, ridges

*Position on landform:* Talf, base slope, interfluvium

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have greater than 50 percent silt content.

Capulin and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have a well-developed subsoil and a thick dark surface layer.

### **Major Uses**

Rangeland, wildlife habitat, source of sand and gravel

## **Km—Kimera loam, 1 to 5 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 4,600 to 5,700 feet (1,402 to 1,737 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.4 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* located in the northern part of the county.

### Map Unit Composition

Kimera and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Kimera soils

*Landscape:* Plains

*Landform:* Ridges, plains

*Position on landform:* Rise, head slope, side slope

*Parent material:* Eolian deposits and/or alluvium

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 8.8 inches (moderate)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 6 inches; loam

Bw—6 to 19 inches; loam

Bk1—19 to 24 inches; clay loam

Bk2—24 to 50 inches; loam

Bk3—50 to 65 inches; loam

#### Minor Components

Wilid and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have greater than 50 percent silt and a well-developed subsoil.



**Oterodry and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Hills, ridges*Position on landform:* Side slope, head slope*Slope:* 1 to 5 percent*Aspect:* All aspects*Shape (down/across):* Convex/convex*Drainage class:* Well drained*Ecological site:* Sandy*Distinguishing characteristics:* These soils have less than 18 percent clay content and more sand.**Major Uses**

Rangeland, wildlife habitat

**KmC—Wilid-Kimera complex, 2 to 9 percent slopes****Map Unit Setting***Major Land Resource Area:* 69*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)*Frost-free period:* 130 to 155 days*Note:* Located in the north-central and northeastern part of the county.**Map Unit Composition**

Wilid and similar soils: 50 percent

Kimera and similar soils: 35 percent

Minor components: 15 percent

**Component Descriptions****Wilid soils***Landscape:* Plains*Landform:* Plains*Position on landform:* Rise*Parent material:* Loess*Slope:* 2 to 5 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth class:* Very deep*Drainage class:* Well drained*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)*Available water capacity:* About 11.0 inches (high)*Shrink-swell potential:* About 2.3 percent (low)*Calcium carbonate maximum:* About 15 percent*Gypsum maximum:* About 2 percent*Salinity maximum:* About 4 mmhos/cm (very slightly saline)*Sodium adsorption ratio maximum:* About 0 (nonsodic)*Ecological site:* Loamy*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated): 3e*

*Land capability subclass (nonirrigated): 6c*

*Typical Profile:*

A—0 to 6 inches; silt loam

Bt—6 to 10 inches; silty clay loam

Btk—10 to 30 inches; silty clay loam

Bk1—30 to 44 inches; silty clay loam

Bk2—44 to 60 inches; silt loam

**Kimera soils**

*Landscape:* Plains

*Landform:* Ridges, plains

*Position on landform:* Side slope, rise, head slope

*Parent material:* Eolian deposits and/or alluvium

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 8.8 inches (moderate)

*Shrink-swell potential:* About 2.5 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing

saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass,

American vetch

*Land capability subclass (irrigated): 3e*

*Land capability subclass (nonirrigated): 6e*

*Typical Profile:*

A—0 to 4 inches; loam

Bw—4 to 15 inches; loam

Bk1—15 to 28 inches; clay loam

Bk2—28 to 47 inches; clay loam

Bk3—47 to 57 inches; silt loam

Bk4—57 to 65 inches; loam

**Minor Components**

Villedry and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Interfluvies, plains

*Position on landform:* Rise

*Slope:* 2 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to sandstone bedrock.

Oterodry and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Head slope, side slope

*Slope:* 4 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils have less than 18 percent clay content and more sand.

### Major Uses

Rangeland, wildlife habitat

## KO—Kimera-Oterodry fine sandy loams, 2 to 7 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the north-central part of the county near Seven Lakes Reservoir and northeast of Aguilar.

### Map Unit Composition

Kimera and similar soils: 46 percent

Oterodry and similar soils: 44 percent

Minor components: 10 percent

### Component Descriptions

#### Kimera soils

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Side slope, head slope

*Parent material:* Eolian deposits

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.3 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, sideoats grama, little bluestem, needleandthread, sand dropseed, western wheatgrass, fourwing saltbush, American vetch

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 6 inches; fine sandy loam

Bw—6 to 21 inches; loam

Bk1—21 to 40 inches; clay loam

Bk2—40 to 60 inches; loam

**Oterodry soils**

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Side slope, head slope

*Parent material:* Eolian deposits

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 7.8 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, little bluestem, needleandthread, sand dropseed, sideoats grama, western wheatgrass, fourwing saltbush, sand sagebrush, sun sedge, American vetch, spreading buckwheat

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 11 inches; fine sandy loam

AC—11 to 25 inches; fine sandy loam

Bk—25 to 60 inches; fine sandy loam

**Minor Components**

Fort and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, ridges, fans

*Position on landform:* Rise, side slope

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils are similar to Kimera soils, but do not have a calcic horizon and have a well-developed subsoil.

Vonid and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Somewhat excessively drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils do not have carbonates in the surface and have a well-developed subsoil.

### Major Uses

Rangeland, wildlife habitat

## Kw—Kandrix loam, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 4,700 to 5,500 feet (1,433 to 1,676 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 135 to 155 days

*Note:* Located in the Dry Cimarron drainage in the southeastern part of the county.

### Map Unit Composition

Kandrix and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Kandrix soils

*Landscape:* Canyonlands

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Alluvium

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.4 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, fourwing saltbush, winterfat, sand dropseed, American vetch, black grama, purple prairieclover, scarlet globemallow, sedge

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 4 inches; loam

Bw—4 to 12 inches; loam

Bk1—12 to 28 inches; loam

Bk2—28 to 36 inches; sandy clay loam

Bk3—36 to 66 inches; fine sandy loam

**Minor Components**

Humbarsprings and similar soils

*Composition:* About 5 percent

*Landscape:* Canyonlands

*Landform:* Fans, terraces

*Position on landform:* Riser, rise

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Gravel Breaks

*Distinguishing characteristics:* These soils have rock fragments throughout.

Otero and similar soils

*Composition:* About 5 percent

*Landscape:* Canyonlands

*Landform:* Plains, hills, ridges

*Position on landform:* Head slope, side slope, rise

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have more than 50 percent sand and less than 18 percent clay content in the profile.

Acantilado and similar soils

*Composition:* About 5 percent

*Landscape:* Canyonlands

*Landform:* Fans

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have greater than 50 percent silt content and formed from red sandstone.

### Major Uses

Rangeland, wildlife habitat

## KwC—Kandrix-Wiley complex, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 5,800 feet (1,524 to 1,768 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the eastern part of the county near Kim, Villegreen, and Andrix.

### Map Unit Composition

Kandrix and similar soils: 50 percent

Wiley and similar soils: 35 percent

Minor components: 15 percent

### Component Descriptions

#### Kandrix soils

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Head slope, side slope

*Parent material:* Eolian deposits

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.3 inches (high)

*Shrink-swell potential:* About 2.4 percent (low)

*Calcium carbonate maximum:* About 35 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, winterfat, sand dropseed, American vetch, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

#### Typical Profile:

A—0 to 6 inches; loam

Bw—6 to 14 inches; loam

Bk1—14 to 26 inches; loam

Bk2—26 to 42 inches; silt loam

Bk3—42 to 51 inches; loam

Bk4—51 to 65 inches; sandy clay loam



**Wiley soils***Landscape:* Plains*Landform:* Plains, ridges*Position on landform:* Rise, crest, base slope*Parent material:* Loess*Slope:* 1 to 4 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth class:* Very deep*Drainage class:* Well drained*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)*Available water capacity:* About 10.9 inches (high)*Shrink-swell potential:* About 2.3 percent (low)*Calcium carbonate maximum:* About 30 percent*Gypsum maximum:* About 3 percent*Salinity maximum:* About 8 mmhos/cm (slightly saline)*Sodium adsorption ratio maximum:* About 7 (slightly sodic)*Ecological site:* Loamy (formerly Loamy Plains)*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, buffalograss, winterfat, American vetch, purple prairieclover, sand dropseed, scarlet globemallow, sun sedge*Land capability subclass (irrigated):* 3e*Land capability subclass (nonirrigated):* 4c*Typical Profile:*

A—0 to 4 inches; silt loam

Bt1—4 to 9 inches; silty clay loam

Bt2—9 to 15 inches; silty clay loam

Btk—15 to 26 inches; silty clay loam

Bk1—26 to 35 inches; silt loam

Bk2—35 to 44 inches; silt loam

Bk3—44 to 72 inches; silt loam

**Minor Components**

Plughat and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Plains, interfluves*Position on landform:* Rise*Slope:* 1 to 4 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic*Drainage class:* Well drained*Ecological site:* Loamy (formerly Loamy Plains)*Distinguishing characteristics:* These soils are 40 to 60 inches deep to sandstone bedrock.

Wapiti and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Drainageways, plains, terraces*Position on landform:* Dip, talf, tread*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have a thick dark surface layer and a well-developed subsoil.

#### Otero and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Side slope, head slope, rise

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have less than 18 percent clay and a higher sand content.

### Major Uses

Rangeland, wildlife habitat

## La—Lanola channery loam, 3 to 25 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 120 to 155 days

*Note:* Located in the south-central part of the county from Trinchera to the Mesa de Mayo near the New Mexico state line.

### Map Unit Composition

Lanola and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Lanola soils

*Landscape:* Plains

*Landform:* Hills, scarps

*Position on landform:* Crest, head slope

*Parent material:* Slope alluvium and residuum weathered from limestone

*Slope:* 3 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 15 percent angular channers

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.6 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 75 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (slightly sodic)

*Ecological site:* Shallow Foothill

*Potential native vegetation:* little bluestem, sideoats grama, western wheatgrass, blue grama, true mountain mahogany, New Mexico feathergrass, Gambel's oak, mountain muhly, needleandthread, twoneedle pinyon, oneseed juniper, Rocky Mountain juniper

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A—0 to 7 inches; channery loam

Bk—7 to 12 inches; channery silt loam

R—12 to 40 inches; bedrock

### **Minor Components**

**Rock outcrop**

*Composition:* About 8 percent

*Landscape:* Plains

*Landform:* Scarps

*Slope:* 3 to 15 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed limestone.

**Ritoazul and similar soils**

*Composition:* About 7 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Rise, side slope

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to shale.

### **Major Uses**

Rangeland, wildlife habitat

## **Lb—La Brier silty clay loam, 0 to 3 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 7,100 feet (1,524 to 2,164 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 150 days

*Note:* Located on basalt mesas from Branson to the Baca County line.

### **Map Unit Composition**

La Brier and similar soils: 90 percent

Minor components: 10 percent

### **Component Descriptions**

#### **La Brier soils**

*Landscape:* Lava plateaus

*Landform:* Depressions, lava plateaus

*Position on landform:* Dip

*Parent material:* Clayey alluvium derived from basalt

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.1 inches (high)

*Shrink-swell potential:* About 4.0 percent (moderate)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 4 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Basalt Loam

*Potential native vegetation:* western wheatgrass, blue grama, American vetch, green needlegrass, needleandthread, sideoats grama, winterfat, bottlebrush squirreltail, sand dropseed

*Land capability subclass (irrigated):* 2c

*Land capability subclass (nonirrigated):* 3c

#### *Typical Profile:*

A—0 to 5 inches; silty clay loam

Bt1—5 to 11 inches; silty clay loam

Bt2—11 to 21 inches; silty clay

Btk—21 to 36 inches; silty clay

Bk1—36 to 46 inches; silty clay loam

Bk2—46 to 72 inches; silt loam

#### **Minor Components**

Torreón and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Position on landform:* Rise

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Basalt Loam

*Distinguishing characteristics:* These soils do not have vertic properties (cracks and slickensides).

### Major Uses

Rangeland, wildlife habitat

## Ld—Leadville cobbly sandy loam, 5 to 40 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 8,500 to 10,800 feet (2,591 to 3,292 meters)

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)

*Frost-free period:* 40 to 70 days

*Note:* Located on mountain slopes of the Sangre de Cristo mountains and the Spanish Peaks.

### Map Unit Composition

Leadville and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Leadville soils

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium derived from sandstone

*Slope:* 5 to 40 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Surface fragments:* About 2 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 5.2 inches (low)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-

Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Potential native vegetation:*

Common trees: Rocky Mountain Douglas fir, subalpine fir, Engelmann's spruce

Other plants: Arizona fescue, common juniper, elk sedge, mountain brome, bluegrass, boxleaf myrtle, grouse whortleberry, kinnikinnick, mountain muhly, muttongrass, russet buffaloberry

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 16 inches; cobbly sandy loam

B/E—16 to 22 inches; very cobbly sandy loam

Bt—22 to 48 inches; very cobbly sandy clay loam

BCt—48 to 65 inches; very cobbly sandy clay loam

### Minor Components

#### Scandard and similar soils

*Composition:* About 5 percent  
*Landscape:* Mountains  
*Landform:* Mountain slopes  
*Position on landform:* Mountainflank  
*Slope:* 20 to 40 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri  
*Distinguishing characteristics:* These soils are 20 to 40 inches deep to sandstone bedrock.

#### Nopurg and similar soils

*Composition:* About 5 percent  
*Landscape:* Mountains  
*Landform:* Mountain slopes  
*Position on landform:* Mountainflank  
*Slope:* 20 to 40 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri  
*Distinguishing characteristics:* These soils have greater than 35 percent clay content.

#### Howlett and similar soils

*Composition:* About 5 percent  
*Landscape:* Mountains  
*Landform:* Mountain slopes  
*Position on landform:* Mountainflank  
*Slope:* 5 to 40 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-Symphoricarpos albus/Festuca arizonica-Carex geyeri  
*Distinguishing characteristics:* These soils have less than 35 percent rock fragments in the profile.

### Major Uses

Woodland, recreation, wildlife habitat

## LG—Manzanst-Ritoazul complex, 4 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,500 to 6,000 feet (1,676 to 1,829 meters)

*Mean annual precipitation:* 14 to 15 inches (356 to 381 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 125 to 145 days

*Note:* Located along the base of the foothills from Aguilar to Trinidad and east to Barela. A few areas have deep gullies.

### Map Unit Composition

Manzanst and similar soils: 60 percent

Ritoazul and similar soils: 30 percent

Minor components: 10 percent

### Component Descriptions

#### Manzanst soils

*Landscape:* Plains

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Alluvium and/or residuum weathered from shale

*Slope:* 4 to 8 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.7 inches (high)

*Shrink-swell potential:* About 5.7 percent (moderate)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 10 (slightly sodic)

*Ecological site:* Clayey (formerly Clayey Plains)

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, green needlegrass, American vetch, winterfat, buffalograss

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 3 inches; silty clay loam

Bt1—3 to 6 inches; silty clay loam

Bt2—6 to 20 inches; silty clay

Btk—20 to 28 inches; silty clay

Bk1—28 to 40 inches; silty clay loam

Bk2—40 to 65 inches; silty clay loam

#### Ritoazul soils

*Landscape:* Plains

*Landform:* Pediments

*Position on landform:* Rise

*Parent material:* Alluvium over residuum weathered from shale

*Slope:* 4 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic



*Drainage class:* Well drained  
*Slowest permeability:* .001 to .06 in/hr (very slow)  
*Available water capacity:* About 6.0 inches (low)  
*Shrink-swell potential:* About 6.6 percent (high)  
*Calcium carbonate maximum:* About 30 percent  
*Gypsum maximum:* About 25 percent  
*Salinity maximum:* About 3 mmhos/cm (very slightly saline)  
*Sodium adsorption ratio maximum:* About 2 (slightly sodic)  
*Ecological site:* Clayey (formerly Clayey Plains)  
*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, green needlegrass, American vetch, buffalograss, winterfat  
*Land capability subclass (irrigated):* 6e  
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 3 inches; silty clay  
 Bss1—3 to 18 inches; silty clay  
 Bss2—18 to 29 inches; silty clay  
 BCk—29 to 33 inches; silty clay  
 B/Cr—33 to 36 inches; silty clay loam  
 Cr—36 to 60 inches; bedrock

**Minor Components**

Midway and similar soils

*Composition:* About 10 percent  
*Landscape:* Plains  
*Landform:* Pediments  
*Position on landform:* Rise  
*Slope:* 4 to 12 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/convex  
*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic  
*Drainage class:* Well drained  
*Ecological site:* Shaly Plains  
*Distinguishing characteristics:* These soils are less than 20 inches to shale bedrock.

**Major Uses**

Rangeland, wildlife habitat

**LH—Leadville-Howlett complex, 5 to 40 percent slopes, stony**

**Map Unit Setting**

*Major Land Resource Area:* 48A  
*Elevation:* 8,500 to 10,800 feet (2,591 to 3,292 meters)  
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)  
*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)  
*Frost-free period:* 40 to 70 days  
*Note:* Located on mountain slopes of the Sangre de Cristo mountains and the Spanish Peaks.

### Map Unit Composition

Leadville and similar soils: 60 percent

Howlett and similar soils: 30 percent

Minor components: 10 percent

### Component Descriptions

#### Leadville soils

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium derived from sandstone

*Slope:* 15 to 40 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Surface fragments:* About 2 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 5.2 inches (low)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-

Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Potential native vegetation:*

Common trees: subalpine fir, Engelmann's spruce, Rocky Mountain Douglas fir

Other plants: Arizona fescue, boxleaf myrtle, common juniper, elk sedge, mountain brome, Woods' rose, bluegrass, grouse whortleberry, muttongrass, russet buffaloberry

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 16 inches; cobbly sandy loam

B/E—16 to 22 inches; very cobbly sandy loam

Bt—22 to 48 inches; very cobbly sandy clay loam

BCt—48 to 65 inches; very cobbly sandy clay loam

#### Howlett soils

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* slope alluvium and colluvium derived from sandstone

*Slope:* 5 to 40 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Surface fragments:* About 1 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 6.3 inches (moderate)

*Shrink-swell potential:* About 2.1 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-

Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Potential native vegetation:*

Common trees: Rocky Mountain Douglas fir, Engelmann's spruce, subalpine fir

Other plants: Arizona fescue, mountain brome, common juniper, elk sedge, russet buffaloberry, bluegrass, boxleaf myrtle, grouse whortleberry, Thurber's fescue, Woods' rose

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 14 inches; cobbly sandy loam

Bt1—14 to 23 inches; gravelly sandy clay loam

Bt2—23 to 47 inches; gravelly sandy clay loam

BCt—47 to 65 inches; very cobbly sandy clay loam

### **Minor Components**

Standard and similar soils

*Composition:* About 8 percent

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Slope:* 20 to 40 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-

Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to sandstone bedrock.

Rock outcrop

*Composition:* About 2 percent

*Landscape:* Mountains

*Landform:* Mountain slopes

*Slope:* 20 to 40 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed Sangre de Cristo sandstone.

### **Major Uses**

Woodland, recreation, wildlife habitat

## **Lo—La Brier-Rock outcrop complex, 0 to 9 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 7,100 feet (1,524 to 2,164 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 150 days

*Note:* Located on the Brown Mesa near Branson.

### **Map Unit Composition**

La Brier and similar soils: 75 percent

Rock outcrop: 15 percent

Minor components: 10 percent

### **Component Descriptions**

#### **La Brier soils**

*Landscape:* Lava plateaus

*Landform:* Depressions, lava plateaus

*Position on landform:* Dip

*Parent material:* Clayey alluvium derived from basalt

*Slope:* 0 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.1 inches (high)

*Shrink-swell potential:* About 4.0 percent (moderate)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 4 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Basalt Loam

*Potential native vegetation:* western wheatgrass, blue grama, American vetch, green needlegrass, needleandthread, sideoats grama, winterfat, bottlebrush squirreltail, sand dropseed

*Land capability subclass (irrigated):* 2c

*Land capability subclass (nonirrigated):* 3c

#### *Typical Profile:*

A—0 to 5 inches; silty clay loam

Bt1—5 to 11 inches; silty clay loam

Bt2—11 to 21 inches; silty clay

Btk—21 to 36 inches; silty clay

Bk1—36 to 46 inches; silty clay loam

Bk2—46 to 72 inches; silt loam

#### **Rock outcrop**

*Description:* Rock outcrop consists of ridges and near-vertical escarpments of basalt

*Landscape:* Lava plateaus

*Landform:* Scarps

*Parent material:* Basalt

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Torreón and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Position on landform:* Rise

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Basalt Loam

*Distinguishing characteristics:* These soils do not have vertic properties (cracks and slickensides).

**Major Uses**

Rangeland, wildlife habitat

**LoA—Limon silty clay loam, 0 to 1 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located along major drainageways in the central part of the county.

**Map Unit Composition**

Limon and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Limon soils**

*Landscape:* River valleys

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Parent material:* Clayey alluvium derived from limestone and shale

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.2 inches (high)

*Shrink-swell potential:* About 7.4 percent (high)

*Flooding hazard:* Rare

*Calcium carbonate maximum:* About 8 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 12 mmhos/cm (moderately saline)

*Sodium adsorption ratio maximum:* About 10 (slightly sodic)

*Ecological site:* Salt Flat

*Potential native vegetation:* alkali sacaton, blue grama, western wheatgrass, fourwing saltbush, galleta, American vetch, greasewood

*Land capability subclass (irrigated):* 3s

*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

A—0 to 6 inches; silty clay loam

AC—6 to 20 inches; silty clay loam

Bk—20 to 60 inches; silty clay

**Minor Components**

Aguilar and similar soils

*Composition:* About 5 percent

*Landscape:* River valleys

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 2 to 6 inches to natric

*Drainage class:* Well drained

*Ecological site:* Salt Flat

*Distinguishing characteristics:* These soils have accumulations of salts and are strongly saline.

Manzanola and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Drainageways, terraces

*Position on landform:* Tread, talf

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Saline Overflow

*Distinguishing characteristics:* These soils have a well-developed subsoil and are slightly alkaline.

Haversid and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Saline Overflow

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

**Major Uses**

Irrigated cropland, rangeland, wildlife habitat

## LR—Fallriver-Rubble land complex, 40 to 80 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 9,500 to 12,000 feet (2,896 to 3,658 meters)

*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)

*Mean annual air temperature:* 34 to 38 degrees F. (1.0 to 3.4 degrees C.)

*Frost-free period:* 40 to 60 days

*Note:* Located on upper mountain slopes near timber line in the Sangre de Cristo mountains.

### Map Unit Composition

Fallriver and similar soils: 50 percent

Rubble land: 35 percent

Minor components: 15 percent

### Component Descriptions

#### Fallriver soils

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium and till derived from diorite or monzonite

*Slope:* 40 to 60 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Surface fragments:* About 15 percent subrounded stones, about 15 percent subrounded cobbles, about 40 percent subrounded gravel

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 3.2 inches (low)

*Shrink-swell potential:* About 1.0 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Engelmann's spruce-Subalpine fir

*Potential native vegetation:*

Common trees: subalpine fir, Engelmann's spruce

Other plants: grouse whortleberry, bluegrass, elk sedge, mountain brome,

Thurber's fescue, common juniper, kinnikinnick, muttongrass, russet buffaloberry, Woods' rose

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

Oe—0 to 2 inches; moderately decomposed plant material

E—2 to 16 inches; extremely stony sandy loam

Bw—16 to 30 inches; very gravelly sandy loam

BC—30 to 70 inches; very gravelly sandy loam



**Rubble land**

*Description:* Rubble land consists of areas of talus on the surface.

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium derived from monzonite and diorite

*Slope:* 40 to 80 percent

*Aspect:* All aspects

*Surface fragments:* About 45 percent subangular boulders, about 40 percent subangular stones

*Available water capacity:* About 3.0 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Angostura and similar soils

*Composition:* About 10 percent

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Slope:* 40 to 60 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Engelmann's spruce-Subalpine fir

*Distinguishing characteristics:* These soils have greater than 18 percent clay content and a well-developed subsoil.

Mirror and similar soils

*Composition:* About 5 percent

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank, upper third

*Slope:* 40 to 80 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Alpine Slopes

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to igneous bedrock.

**Major Uses**

Woodland, recreation, wildlife habitat

## **LRT—Lorencito-Rombo-Sarcillo complex, 25 to 65 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 49

*Elevation:* 6,500 to 8,500 feet (1,981 to 2,591 meters)

*Mean annual precipitation:* 15 to 18 inches (381 to 457 millimeters)

*Mean annual air temperature:* 43 to 50 degrees F. (6.0 to 10.0 degrees C.)

*Frost-free period:* 80 to 135 days

*Note:* Located on extremely steep slopes on lower elevations of the foothills north and west of Trinidad.

### **Map Unit Composition**

Lorencito and similar soils: 40 percent

Rombo and similar soils: 30 percent

Sarcillo and similar soils: 20 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Lorencito soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope, head slope

*Parent material:* Slope alluvium and residuum weathered from shale and siltstone

*Slope:* 30 to 65 percent

*Aspect:* East to west

*Shape (down/across):* Linear/convex

*Surface fragments:* About 15 percent subangular gravel

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.5 inches (very low)

*Shrink-swell potential:* About 7.5 percent (high)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Pinus edulis-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: Rocky Mountain juniper, twoneedle pinyon

Other plants: western wheatgrass, little bluestem, needleandthread, sideoats

grama, blue grama, Gambel's oak, Indian ricegrass, true mountain mahogany,

American vetch

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

- A—0 to 4 inches; channery clay loam
- AC—4 to 16 inches; parachannery clay
- Cr—16 to 26 inches; bedrock

**Rombo soils***Landscape:* Foothills*Landform:* Hills*Position on landform:* Head slope, side slope*Parent material:* Slope alluvium and residuum weathered from shale and siltstone*Slope:* 30 to 50 percent*Aspect:* West to east*Shape (down/across):* Linear/convex*Surface fragments:* About 30 percent subangular gravel*Depth class:* Moderately deep*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic*Drainage class:* Well drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 5.4 inches (low)*Shrink-swell potential:* About 7.0 percent (high)*Calcium carbonate maximum:* About 5 percent*Gypsum maximum:* None*Salinity maximum:* About 1 mmhos/cm (nonsaline)*Sodium adsorption ratio maximum:* About 2 (slightly sodic)*Ecological site:* Shrubby Foothill*Potential native vegetation:*

Common trees: Gambel's oak, ponderosa pine, twoneedle pinyon

Other plants: mountain muhly, mountain mahogany, Gambel's oak, western wheatgrass, sideoats grama, big bluestem, Griffith wheatgrass, little bluestem, blue grama, skunkbush sumac, American vetch, purple prairieclover, Rocky Mountain juniper, twoneedle pinyon

*Land capability subclass (nonirrigated):* 7e*Typical Profile:*

- A—0 to 4 inches; channery silty clay loam
- Bw—4 to 22 inches; channery silty clay loam
- Bk—22 to 34 inches; parachannery silty clay loam
- Cr—34 to 44 inches; bedrock

**Sarcillo soils***Landscape:* Foothills*Landform:* Hills*Position on landform:* Base slope, interfluvium*Parent material:* Slope alluvium weathered from sandstone and shale*Slope:* 25 to 40 percent*Aspect:* Southeast to west*Shape (down/across):* Linear/linear*Depth class:* Shallow*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic*Drainage class:* Well drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 2.6 inches (very low)*Shrink-swell potential:* About 6.9 percent (high)*Calcium carbonate maximum:* About 5 percent*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus edulis-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: oneseed juniper, Rocky Mountain juniper, twoneedle pinyon

Other plants: little bluestem, sideoats grama, true mountain mahogany, mountain muhly, needleandthread, Gambel's oak, American vetch, fringed sagewort, prairie junegrass, purple prairieclover, western wheatgrass

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 5 inches; loam

Bt—5 to 8 inches; clay loam

Btss1—8 to 13 inches; clay

Btss2—13 to 16 inches; clay

R—16 to 60 inches; bedrock

### **Minor Components**

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Scarps

*Slope:* 30 to 65 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed sandstone, siltstone and shale of the Raton formation.

Fuera and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope, base slope

*Slope:* 5 to 30 percent

*Aspect:* West to east

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

### **Major Uses**

Woodland, firewood, livestock grazing, wildlife habitat

## **Ls—Las Animas loam, 0 to 1 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 4,400 to 5,900 feet (1,341 to 1,799 meters)

*Mean annual precipitation:* 12 to 15 inches (305 to 381 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located along the Purgatoire River from Trinidad to Hoehne.

### Map Unit Composition

Las Animas and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Las Animas soils

*Landscape:* River valleys

*Landform:* Low flood plains

*Position on landform:* Tread

*Parent material:* Sandy alluvium

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Depth class:* Very deep

*Drainage class:* Poorly drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 5.5 inches (low)

*Shrink-swell potential:* About 1.0 percent (low)

*Flooding hazard:* Occasional

*Seasonal high water table depth:* About 12 to 36 inches

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Salt Meadow

*Potential native vegetation:* alkali sacaton, switchgrass, western wheatgrass, prairie cordgrass, alkali bluegrass, sedge, vine mesquite, Baltic rush

*Land capability subclass (irrigated):* 3w

*Land capability subclass (nonirrigated):* 4w

#### Typical Profile:

A—0 to 3 inches; loam

Ckyg1—3 to 11 inches; fine sandy loam

Cg1—11 to 23 inches; stratified sandy loam to fine sandy loam

Ckyg2—23 to 26 inches; silt loam

Cg2—26 to 36 inches; loamy sand

C—36 to 65 inches; sand

#### Minor Components

Hoehne and similar soils

*Composition:* About 10 percent

*Landscape:* River valleys

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Somewhat excessively drained

*Flooding hazard:* Occasional

*Ecological site:* Sandy Bottomland

*Distinguishing characteristics:* These soils do not have a water table.

**Bloom and similar soils***Composition:* About 5 percent*Landscape:* River valleys*Landform:* Flood plains, terraces*Position on landform:* Tread*Slope:* 0 to 2 percent*Aspect:* All aspects*Shape (down/across):* Concave/linear*Drainage class:* Somewhat poorly drained*Flooding hazard:* Occasional*Ecological site:* Salt Meadow*Distinguishing characteristics:* These soils have less sand and more than 18 percent clay content.**Major Uses**

Hay and pasture, rangeland, wildlife habitat

**LST—Lorencito-Sarcillo-Trujillo complex, 3 to 25 percent slopes****Map Unit Setting***Major Land Resource Area:* 49*Elevation:* 6,500 to 7,800 feet (1,981 to 2,378 meters)*Mean annual precipitation:* 15 to 18 inches (381 to 457 millimeters)*Mean annual air temperature:* 43 to 52 degrees F. (6.0 to 11.0 degrees C.)*Frost-free period:* 80 to 135 days*Note:* Located on steep slopes of lower elevation foothills predominantly north and west of Trinidad.**Map Unit Composition**

Lorencito and similar soils: 40 percent

Sarcillo and similar soils: 30 percent

Trujillo and similar soils: 20 percent

Minor components: 10 percent

**Component Descriptions****Lorencito soils***Landscape:* Foothills*Landform:* Hills*Position on landform:* Head slope, side slope*Parent material:* Slope alluvium and residuum weathered from shale and siltstone*Slope:* 10 to 25 percent*Aspect:* East to west*Shape (down/across):* Linear/convex*Surface fragments:* About 15 percent subangular gravel*Depth class:* Shallow*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic*Drainage class:* Well drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 2.5 inches (very low)*Shrink-swell potential:* About 7.5 percent (high)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Pinus edulis-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: Rocky Mountain juniper, twoneedle pinyon

Other plants: western wheatgrass, little bluestem, needleandthread, sideoats grama, blue grama, Gambel's oak, Indian ricegrass, true mountain mahogany, American vetch

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 4 inches; channery clay loam

AC—4 to 16 inches; parachannery clay

Cr—16 to 26 inches; bedrock

### **Sarcillo soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Interfluve, base slope

*Parent material:* Slope alluvium weathered from sandstone and shale

*Slope:* 3 to 15 percent

*Aspect:* East to west

*Shape (down/across):* Linear/linear

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.6 inches (very low)

*Shrink-swell potential:* About 6.9 percent (high)

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus edulis-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: oneseed juniper, Rocky Mountain juniper, twoneedle pinyon

Other plants: little bluestem, sideoats grama, true mountain mahogany, mountain muhly, needleandthread, Gambel's oak, American vetch, fringed sagewort, prairie junegrass, purple prairieclover, western wheatgrass

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 5 inches; loam

Bt—5 to 8 inches; clay loam

Btss1—8 to 13 inches; clay

Btss2—13 to 16 inches; clay

R—16 to 60 inches; bedrock

### **Trujillo soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Base slope

*Parent material:* Alluvium derived from sandstone



*Slope:* 3 to 9 percent

*Aspect:* East to west

*Shape (down/across):* Concave/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 8.2 inches (moderate)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* About 3 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy Foothill

*Potential native vegetation:* western wheatgrass, green needlegrass, blue grama, bluegrass, mountain muhly, winterfat, needleandthread, American vetch, fourwing saltbush, fringed sagewort, prairie junegrass, sun sedge

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 9 inches; loam

Bt1—9 to 13 inches; loam

Bt2—13 to 20 inches; clay loam

Bt3—20 to 36 inches; sandy clay loam

C—36 to 58 inches; fine sandy loam

Bk—58 to 70 inches; fine sandy loam

### **Minor Components**

Capulin and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils are similar to Trujillo, but have calcium carbonate accumulations close to the surface.

### **Major Uses**

Woodland, firewood, livestock grazing, wildlife habitat

## **Lt—Littlepine sandy loam, 3 to 15 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 49

*Elevation:* 7,000 to 8,800 feet (2,134 to 2,682 meters)

*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)

*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)

*Frost-free period:* 70 to 100 days

*Note:* Located in the Gulnare, Bon Carbo, and Sarcillo Canyon areas of the foothills.



Figure 9.—A typical landscape of Littlepine sandy loam, 3 to 15 percent slopes, under open stands of ponderosa pine.

### Map Unit Composition

Littlepine and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Littlepine soils

*Landscape:* Foothills

*Landform:* Fan remnants, hills

*Position on landform:* Base slope, side slope, rise

*Parent material:* Alluvium and slope alluvium derived from sandstone

*Slope:* 3 to 15 percent

*Aspect:* West to south

*Shape (down/across):* Linear/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.5 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: ponderosa pine, Rocky Mountain Douglas fir

Other plants: mountain muhly, Arizona fescue, Parry's danthonia, nodding brome, bluegrass, Gambel's oak, pine dropseed, prairie junegrass, elk sedge, fringed sagewort

*Land capability subclass (irrigated): 6e*

*Land capability subclass (nonirrigated): 6e*

*Typical Profile:*

Oi—0 to 1 inch; slightly decomposed plant material

A—1 inch to 3 inches; fine sandy loam

E—3 to 6 inches; fine sandy loam

Bt1—6 to 16 inches; sandy clay loam

Bt2—16 to 30 inches; sandy clay loam

Bt3—30 to 48 inches; clay loam

BC—48 to 66 inches; sandy clay loam

C—66 to 72 inches; sandy loam

### **Minor Components**

**Trujillo and similar soils**

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fans, drainageways

*Position on landform:* Rise

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils have a thick dark surface layer and are typically in open meadows.

**Allens Park and similar soils**

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are 20 to 40 inches to sandstone bedrock.

### **Major Uses**

Woodland, livestock grazing, wildlife habitat

## **LvD—Lorencito clay loam, 3 to 20 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,500 to 6,500 feet (1,676 to 1,981 meters)

*Mean annual precipitation:* 15 to 16 inches (381 to 406 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 125 to 140 days

*Note:* Located in the plains bordering the foothills from Aguilar to Trinidad and southeast to Barela. A few areas have deep gullies.

### **Map Unit Composition**

Lorencito and similar soils: 90 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Lorencito soils**

*Landscape:* Plains

*Landform:* Pediments, structural benches

*Position on landform:* Head slope, side slope, rise

*Parent material:* Slope alluvium and residuum weathered from shale

*Slope:* 3 to 20 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Surface fragments:* About 15 percent subangular gravel

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 3.1 inches (low)

*Shrink-swell potential:* About 6.7 percent (high)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Shaly Plains

*Potential native vegetation:* western wheatgrass, blue grama, green needlegrass, needleandthread, sideoats grama, winterfat, little bluestem, American vetch

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

#### *Typical Profile:*

A—0 to 8 inches; clay loam

AC—8 to 18 inches; silty clay

Cr—18 to 28 inches; bedrock

### **Minor Components**

Baca, cool and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Rise, tread

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils are greater than 60 inches deep to bedrock.

**Ritoazul and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Hills, pediments*Position on landform:* Side slope, rise*Slope:* 3 to 5 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic*Drainage class:* Well drained*Ecological site:* Clayey (formerly Clayey Plains)*Distinguishing characteristics:* These soils are 20 to 40 inches deep to shale bedrock.**Major Uses**

Rangeland, wildlife habitat

**LW—Littlepine-Wahatoya complex, 15 to 40 percent slopes****Map Unit Setting***Major Land Resource Area:* 49*Elevation:* 7,000 to 9,000 feet (2,134 to 2,743 meters)*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)*Frost-free period:* 70 to 100 days*Note:* Located in the western part of the foothills near Stonewall and Gulnare.**Map Unit Composition**

Littlepine and similar soils: 50 percent

Wahatoya and similar soils: 35 percent

Minor components: 15 percent

**Component Descriptions****Littlepine soils***Landscape:* Foothills*Landform:* Hills*Position on landform:* Base slope, side slope*Parent material:* slope alluvium derived from sandstone*Slope:* 15 to 30 percent*Aspect:* Northwest to southeast*Shape (down/across):* Linear/linear*Depth class:* Very deep*Drainage class:* Well drained*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)*Available water capacity:* About 9.5 inches (high)*Shrink-swell potential:* About 2.3 percent (low)*Calcium carbonate maximum:* None*Gypsum maximum:* None*Salinity maximum:* About 2 mmhos/cm (nonsaline)*Sodium adsorption ratio maximum:* About 0 (nonsodic)



*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Potential native vegetation:*

Common trees: ponderosa pine, Rocky Mountain Douglas fir

Other plants: mountain muhly, Arizona fescue, Parry's danthonia, nodding brome, bluegrass, Gambel's oak, pine dropseed, prairie junegrass, elk sedge, fringed sagewort

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

Oi—0 to 1 inch; slightly decomposed plant material

A—1 inch to 3 inches; fine sandy loam

E—3 to 6 inches; fine sandy loam

Bt1—6 to 16 inches; sandy clay loam

Bt2—16 to 30 inches; sandy clay loam

Bt3—30 to 48 inches; clay loam

BC—48 to 66 inches; sandy clay loam

C—66 to 72 inches; sandy loam

### **Wahatoya soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope, head slope

*Parent material:* Colluvium and residuum weathered from sandstone

*Slope:* 25 to 40 percent

*Aspect:* Northwest to southeast

*Shape (down/across):* Linear/convex

*Surface fragments:* About 5 percent subrounded stones

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.6 inches (low)

*Shrink-swell potential:* About 1.7 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Potential native vegetation:*

Common trees: Rocky Mountain Douglas fir, ponderosa pine

Other plants: mountain muhly, Arizona fescue, nodding brome, Parry's danthonia, common juniper, elk sedge, Gambel's oak, muttongrass, pine dropseed, Sandberg bluegrass, kinnikinnick, fringed sagewort

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

Oi—0 to 1 inch; slightly decomposed plant material

A—1 inch to 3 inches; sandy loam

E—3 to 9 inches; sandy loam

Bt1—9 to 21 inches; very cobbly sandy clay loam

Bt2—21 to 31 inches; very cobbly sandy clay loam

BC—31 to 36 inches; very cobbly sandy clay loam

R—36 to 60 inches; bedrock

**Minor Components**

Tecolote and similar soils

*Composition:* About 8 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 15 to 40 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Distinguishing characteristics:* These soils are similar to Wahatoya soils but are greater than 60 inches deep to bedrock.

Gulnare and similar soils

*Composition:* About 7 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope, head slope

*Slope:* 15 to 40 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Distinguishing characteristics:* These soils are less than 20 inches deep to sandstone bedrock.

**Major Uses**

Woodland, livestock grazing, wildlife habitat

**MaB—Mauricanyon loam, 0 to 3 percent slopes, warm****Map Unit Setting**

*Major Land Resource Area:* 70, 67

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located along major drainageways in the southern half of the county from Trinidad to Kim.

**Map Unit Composition**

Mauricanyon, warm and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Mauricanyon, warm soils**

*Landscape:* Canyonlands, plains

*Landform:* Terraces



*Position on landform:* Tread

*Parent material:* Loamy alluvium derived from sandstone and shale

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.3 inches (high)

*Shrink-swell potential:* About 2.5 percent (low)

*Flooding hazard:* Rare

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Overflow

*Potential native vegetation:* western wheatgrass, blue grama, green needlegrass, big bluestem, winterfat, yellow Indiangrass, American vetch, buffalograss, fourwing saltbush, sand dropseed

*Land capability subclass (irrigated):* 2c

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A1—0 to 4 inches; loam

A2—4 to 26 inches; loam

Bw—26 to 40 inches; loam

Bk—40 to 68 inches; loam

### **Minor Components**

Trementina and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands, plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have more than 50 percent silt and less sand in the profile.

### **Major Uses**

Cropland, rangeland, wildlife habitat

## **MaW—Mauricanyon clay loam, 0 to 2 percent slopes, wet**

### **Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,500 to 6,000 feet (1,676 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in the irrigated areas from Trinidad to Hoehne along the Purgatoire River. These soils have more clay in the surface due to muddy irrigation water.

### Map Unit Composition

Mauricanyon, wet and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### **Mauricanyon, wet soils**

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Silty and clayey alluvium from irrigation water over loamy alluvium derived from sedimentary rock

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Moderately well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 9.8 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Flooding hazard:* Rare

*Seasonal high water table depth:* About 30 to 42 inches

*Calcium carbonate maximum:* About 2 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 1 (slightly sodic)

*Ecological site:* Clayey (formerly Clayey Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, sand dropseed, winterfat, American vetch, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2c

*Land capability subclass (nonirrigated):* 4c

#### *Typical Profile:*

A1—0 to 6 inches; clay loam

Bw1—6 to 12 inches; clay loam

Bw2—12 to 23 inches; clay loam

BC—23 to 34 inches; sandy clay loam

Bg1—34 to 44 inches; silt loam

Bg2—44 to 65 inches; silt loam

#### **Minor Components**

Mauricanyon and similar soils

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils do not have a water table.

Trementina, cool and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Clayey Foothill

*Distinguishing characteristics:* These soils have more than 50 percent silt and less sand in the profile, and do not have a water table.

Furia and similar soils

*Composition:* About 1 percent

*Landscape:* Lava plateaus

*Landform:* Drainageways

*Position on landform:* Dip

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have a seasonal high water table.

### **Major Uses**

Irrigated cropland, rangeland, wildlife habitat

### **Major Management Limitations**

These soils have a water table at depths below 40 inches. Construction, septic systems, and deep pipelines can be affected.

## **MD—Mine Dumps**

### **Map Unit Setting**

*Major Land Resource Area:* 48A, 49

*Elevation:* 6,000 to 8,000 feet (1,829 to 2,438 meters)

*Mean annual precipitation:* 14 to 20 inches (356 to 508 millimeters)

*Mean annual air temperature:* 44 to 52 degrees F. (6.7 to 11.0 degrees C.)

*Frost-free period:* 70 to 145 days

*Note:* Located in the western third of Las Animas County adjacent to mine sites.

### **Map Unit Composition**

Dumps, mine: 100 percent

Minor components: None

### Component Descriptions

#### Dumps, mine

*Description:* Mine dumps consists of deposits of tailings from coal, sandstone, and shale.

*Landscape:* Foothills

*Parent material:* Sedimentary rock

*Slope:* 5 to 30 percent

*Aspect:* All aspects

*Available water capacity:* About 0.6 inches (very low)

*Land capability subclass (nonirrigated):* 8s

### Mf—Moran Family, 5 to 40 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 11,000 to 12,500 feet (3,353 to 3,810 meters)

*Mean annual precipitation:* 30 to 40 inches (762 to 1,016 millimeters)

*Mean annual air temperature:* 34 to 37 degrees F. (1.0 to 3.0 degrees C.)

*Frost-free period:* 10 to 30 days

*Note:* Located in the tundra of the Sangre de Cristo mountains.

#### Map Unit Composition

Moran and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Moran soils

*Landscape:* Mountains

*Landform:* Mountains

*Position on landform:* Mountaintop

*Parent material:* Colluvium and till derived from monzonite and diorite

*Slope:* 5 to 40 percent

*Aspect:* Northwest to south

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 3.5 inches (low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Alpine Slopes

*Potential native vegetation:* kobresia, tufted hairgrass, willow, alpine bluegrass, purple reedgrass, sedge, arctic bluegrass, spike trisetum, wheatgrass, alpine sagebrush

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

A1—0 to 6 inches; very cobbly fine sandy loam

A2—6 to 17 inches; very gravelly fine sandy loam  
 Bw1—17 to 30 inches; very cobbly sandy loam  
 Bw2—30 to 40 inches; very cobbly sandy loam  
 C—40 to 60 inches; extremely cobbly coarse sandy loam

### Minor Components

#### Mirror and similar soils

*Composition:* About 10 percent  
*Landscape:* Mountains  
*Landform:* Mountain slopes  
*Position on landform:* Mountainflank, upper third  
*Slope:* 5 to 40 percent  
*Aspect:* Northwest to south  
*Shape (down/across):* Linear/convex  
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Ecological site:* Alpine Slopes  
*Distinguishing characteristics:* These soils are 20 to 40 inches deep to igneous bedrock.

#### Rock outcrop

*Composition:* About 5 percent  
*Landscape:* Mountains  
*Landform:* Scarps  
*Slope:* 15 to 40 percent  
*Aspect:* All aspects  
*Depth to restrictive feature:* 0 inches to bedrock, lithic  
*Distinguishing characteristics:* Rock outcrop consists of areas of exposed monzonite and diorite.

### Major Uses

Grazing land, wildlife habitat

## MG—Tercio-Graneros complex, 15 to 40 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)  
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)  
*Mean annual air temperature:* 38 to 42 degrees F. (3.3 to 5.8 degrees C.)  
*Frost-free period:* 40 to 60 days  
*Note:* Located near Tercio, Torres, and Cucharas Pass in western part of the county.

### Map Unit Composition

Tercio and similar soils: 60 percent  
 Graneros and similar soils: 30 percent  
 Minor components: 10 percent

### Component Descriptions

#### Tercio soils

*Landscape:* Mountains  
*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium and residuum weathered from shale and siltstone

*Slope:* 15 to 40 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Concave/linear

*Surface fragments:* About 1 percent cobbles

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 7.6 inches (moderate)

*Shrink-swell potential:* About 3.0 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-

Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Potential native vegetation:*

Common trees: white fir, Rocky Mountain Douglas fir, Engelmann's spruce

Other plants: Thurber's fescue, elk sedge, Parry's danthonia, Arizona fescue, mountain brome, buffaloberry, common juniper, whortleleaf snowberry, kinnikinnick, rose

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oi—0 to 2 inches; slightly decomposed plant material

E—2 to 10 inches; cobbly loam

E/B—10 to 16 inches; very cobbly clay loam

Bt1—16 to 30 inches; gravelly clay

Bt2—30 to 38 inches; cobbly clay

BC—38 to 60 inches; cobbly clay loam

### **Graneros soils**

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Alluvium and residuum weathered from shale and siltstone

*Slope:* 15 to 40 percent

*Aspect:* Northwest to south

*Shape (down/across):* Convex/linear

*Surface fragments:* About 5 percent subrounded stones

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 4.9 inches (low)

*Shrink-swell potential:* About 4.2 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-

Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Potential native vegetation:*

Common trees: white fir, Rocky Mountain Douglas fir, Engelmann's spruce  
 Other plants: Thurber's fescue, elk sedge, Parry's danthonia, Arizona fescue,  
 mountain brome, buffaloberry, creeping juniper, muttongrass, kinnikinnick,  
 Woods' rose

*Land capability subclass (nonirrigated): 7e*

*Typical Profile:*

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 inch to 3 inches; gravelly loam  
 E—3 to 7 inches; gravelly loam  
 Bt/E—7 to 13 inches; gravelly clay loam  
 Bt1—13 to 23 inches; gravelly clay  
 Bt2—23 to 32 inches; parachannery silty clay loam  
 Cr—32 to 60 inches; bedrock

**Minor Components**

Cucharas and similar soils

*Composition:* About 8 percent

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Slope:* 15 to 35 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Loamy Park

*Distinguishing characteristics:* These soils have a high organic surface layer and are in open grassy meadows.

Rock outcrop

*Composition:* About 2 percent

*Landscape:* Mountains

*Landform:* Scarps

*Slope:* 20 to 40 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed sandstone and siltstone of the Raton formation.

**Major Uses**

Woodland, recreation, wildlife habitat

## **MGR—Midway-Ritoazul-Rock outcrop complex, 1 to 15 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)



*Frost-free period:* 130 to 155 days

*Note:* Located in the central and eastern parts of the county north of Branson and north of Andrix.

### Map Unit Composition

Midway, moist and similar soils: 40 percent

Ritoazul and similar soils: 35 percent

Rock outcrop: 15 percent

Minor components: 10 percent

### Component Descriptions

#### Midway, moist soils

*Landscape:* Plains

*Landform:* Pediments, hills

*Position on landform:* Head slope, side slope, rise

*Parent material:* Slope alluvium over residuum weathered from shale

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Surface fragments:* About 10 percent subangular gravel

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 7.2 percent (high)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 15 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 15 (moderately sodic)

*Ecological site:* Shaly Plains

*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, sideoats grama, fourwing saltbush, green needlegrass, winterfat, little bluestem, American vetch

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

A—0 to 5 inches; clay

Bw—5 to 14 inches; silty clay

Cr—14 to 60 inches; bedrock

#### Ritoazul soils

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Interfluve, base slope, rise

*Parent material:* Alluvium and residuum weathered from shale

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 6.0 inches (low)

*Shrink-swell potential:* About 6.6 percent (high)  
*Calcium carbonate maximum:* About 30 percent  
*Gypsum maximum:* About 25 percent  
*Salinity maximum:* About 3 mmhos/cm (very slightly saline)  
*Sodium adsorption ratio maximum:* About 2 (slightly sodic)  
*Ecological site:* Clayey (formerly Clayey Plains)  
*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, green needlegrass, American vetch, buffalograss, winterfat  
*Land capability subclass (irrigated):* 3e  
*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 3 inches; silty clay  
 Bss1—3 to 18 inches; silty clay  
 Bss2—18 to 29 inches; silty clay  
 BCk—29 to 33 inches; silty clay  
 B/Cr—33 to 36 inches; silty clay loam  
 Cr—36 to 60 inches; bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed Thatcher limestone along the crest of hills and ridges.

*Landscape:* Plains

*Landform:* Hills, scarps

*Parent material:* Limestone

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Minqwet and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Rise, side slope

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

**Major Uses**

Rangeland, wildlife habitat

**MI—Minqwet-Wiley silt loams, 1 to 4 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the south-central and eastern parts of the county from Trinchera to Andrix.

### Map Unit Composition

Minqwet and similar soils: 55 percent

Wiley and similar soils: 30 percent

Minor components: 15 percent

### Component Descriptions

#### Minqwet soils

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Side slope, rise

*Parent material:* Loess and residuum weathered from calcareous shale and limestone

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 5.4 inches (low)

*Shrink-swell potential:* About 2.5 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 5 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, winterfat, sand dropseed, bottlebrush squirreltail, rubber rabbitbrush, broom snakeweed, red threeawn

*Land capability subclass (irrigated):* 3s

*Land capability subclass (nonirrigated):* 4e

#### Typical Profile:

A—0 to 6 inches; silt loam

Bw1—6 to 14 inches; silty clay loam

Bw2—14 to 21 inches; silty clay loam

Bky—21 to 30 inches; silty clay loam

Cr—30 to 45 inches; bedrock

#### Wiley soils

*Landscape:* Plains

*Landform:* Hills, plains

*Position on landform:* Rise, interfluvial, base slope

*Parent material:* Loess

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 10.9 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 7 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, buffalograss, winterfat, American vetch, purple prairieclover, sand dropseed, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 4 inches; silt loam

Bt1—4 to 9 inches; silty clay loam

Bt2—9 to 15 inches; silty clay loam

Btk—15 to 26 inches; silty clay loam

Bk1—26 to 35 inches; silt loam

Bk2—35 to 44 inches; silt loam

Bk3—44 to 72 inches; silt loam

### **Minor Components**

Shingle and similar soils

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Side slope, rise

*Slope:* 2 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Shaly Plains

*Distinguishing characteristics:* These soils are less than 20 inches deep to shale bedrock.

Penrose and similar soils

*Composition:* About 6 percent

*Landscape:* Plains

*Landform:* Scarps

*Position on landform:* Crest

*Slope:* 2 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Limestone Breaks

*Distinguishing characteristics:* These soils are less than 20 inches deep to limestone bedrock.

### **Major Uses**

Rangeland, wildlife habitat

## MIK—Midway-Chicosa complex, 5 to 35 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,500 to 6,500 feet (1,676 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 48 to 54 degrees F. (9.0 to 12.0 degrees C.)

*Frost-free period:* 120 to 145 days

*Note:* Located in the plains adjacent to the foothills near Trinidad and Aguilar.

### Map Unit Composition

Midway and similar soils: 45 percent

Chicosa and similar soils: 40 percent

Minor components: 15 percent

### Component Descriptions

#### Midway soils

*Landscape:* Foothills

*Landform:* Fan remnants, pediments

*Position on landform:* Riser, side slope

*Parent material:* Slope alluvium and residuum weathered from shale

*Slope:* 15 to 35 percent

*Aspect:* West to southeast

*Shape (down/across):* Linear/convex

*Surface fragments:* About 10 percent subangular gravel

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 3.0 inches (low)

*Shrink-swell potential:* About 7.5 percent (high)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 15 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 15 (moderately sodic)

*Ecological site:* Shaly Foothill

*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, sideoats grama, fourwing saltbush, green needlegrass, winterfat, little bluestem, American vetch

*Land capability subclass (irrigated):* 7e

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

A—0 to 4 inches; clay loam

AC—4 to 10 inches; silty clay

C—10 to 18 inches; silty clay

Cr—18 to 39 inches; bedrock

#### Chicosa soils

*Landscape:* Foothills

*Landform:* Fan remnants

*Position on landform:* Rise

*Parent material:* Sandy and gravelly alluvium

*Slope:* 5 to 25 percent

*Aspect:* West to east

*Shape (down/across):* Convex/linear

*Surface fragments:* About 5 percent rounded cobbles, about 15 percent rounded gravel

*Depth class:* Very deep

*Depth to restrictive feature:* 14 to 30 inches to strongly contrasting textural stratification

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.7 inches (low)

*Shrink-swell potential:* About 0.7 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* None

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Gravelly Foothill

*Potential native vegetation:* little bluestem, blue grama, sideoats grama, needleandthread, prairie sandreed, true mountain mahogany, western wheatgrass, mountain muhly, plains muhly, fringed sagewort, Rocky Mountain juniper, small soapweed

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 6 inches; gravelly loam

Bw—6 to 20 inches; very gravelly loam

2Bk—20 to 37 inches; extremely gravelly sandy loam

2C—37 to 72 inches; extremely gravelly loamy sand

### **Minor Components**

Capulin and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 5 to 10 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils do not have rock fragments and are greater than 60 inches to bedrock.

Baca and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Talf

*Slope:* 5 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils do not have rock fragments and are greater than 60 inches to bedrock.

#### **Major Uses**

Rangeland, wildlife habitat, source of sand and gravel

### **MnA—Manzanst silty clay loam, 0 to 1 percent slopes**

#### **Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,700 to 6,000 feet (1,737 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* located in the irrigated areas between Trinidad and Hoehne along the Purgatoire River

#### **Map Unit Composition**

Manzanst and similar soils: 90 percent

Minor components: 10 percent

#### **Component Descriptions**

##### **Manzanst soils**

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Tread, talf

*Parent material:* Silty and clayey alluvium from irrigation water over clayey alluvium derived from sedimentary rock

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.7 inches (high)

*Shrink-swell potential:* About 5.7 percent (moderate)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 10 (slightly sodic)

*Ecological site:* Clayey (formerly Clayey Plains)

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, green needlegrass, American vetch, winterfat, buffalograss

*Land capability subclass (irrigated):* 2s

*Land capability subclass (nonirrigated):* 4c

##### **Typical Profile:**

A—0 to 3 inches; silty clay loam

Bt1—3 to 6 inches; silty clay loam

Bt2—6 to 20 inches; silty clay

Btk—20 to 28 inches; silty clay



Bk1—28 to 40 inches; silty clay loam

Bk2—40 to 65 inches; silty clay loam

### Minor Components

Baca and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Talf, tread

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils are leached of carbonates in the surface and upper part of the subsoil.

Raku and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils have a thick dark surface layer.

### Major Uses

Rangeland, irrigated cropland, wildlife habitat

## MnB—Manzanst silty clay loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67, 70

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the south-central and eastern part of the county near Trinchera, Villegreen, and Kim.

### Map Unit Composition

Manzanst and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Manzanst soils

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Talf

*Parent material:* Loess and alluvium derived from clayey shale

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.7 inches (high)

*Shrink-swell potential:* About 5.7 percent (moderate)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 10 (slightly sodic)

*Ecological site:* Clayey (formerly Clayey Plains)

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, green needlegrass, American vetch, winterfat, buffalograss

*Land capability subclass (irrigated):* 3s

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 3 inches; silty clay loam

Bt1—3 to 6 inches; silty clay loam

Bt2—6 to 20 inches; silty clay

Btk—20 to 28 inches; silty clay

Bk1—28 to 40 inches; silty clay loam

Bk2—40 to 65 inches; silty clay loam

### **Minor Components**

Ritoazul and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Pediments, plains

*Position on landform:* Rise

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils are moderately deep to shale.

Baca and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Rise, talf

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils are leached of carbonates in the surface and upper part of the subsoil.

**Wiley and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Plains*Position on landform:* Talf*Slope:* 0 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Loamy (formerly Loamy Plains)*Distinguishing characteristics:* These soils have less than 35 percent clay content.**Major Uses**

Rangeland, nonirrigated cropland, wildlife habitat

**MnW—Aquic Haplustalfs, 0 to 3 percent slopes****Map Unit Setting***Major Land Resource Area:* 67*Elevation:* 5,500 to 6,000 feet (1,677 to 1,829 meters)*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)*Frost-free period:* 125 to 155 days*Note:* Located in the irrigated areas from Trinidad to Hoehne.**Map Unit Composition**

Aquic Haplustalfs and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Aquic Haplustalfs soils***Landscape:* Plains*Landform:* Fans, terraces*Position on landform:* Rise, tread*Parent material:* Silty and clayey alluvium from irrigation water over clayey alluvium derived from sedimentary rock*Slope:* 0 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth class:* Very deep*Drainage class:* Somewhat poorly drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 10.7 inches (high)*Shrink-swell potential:* About 5.7 percent (moderate)*Seasonal high water table depth:* About 24 to 36 inches*Calcium carbonate maximum:* About 15 percent*Gypsum maximum:* About 3 percent*Salinity maximum:* About 4 mmhos/cm (very slightly saline)*Sodium adsorption ratio maximum:* About 10 (slightly sodic)*Ecological site:* Salt Meadow*Potential native vegetation:* western wheatgrass, blue grama, alkali sacaton, green needlegrass, alkali muhly, fourwing saltbush, inland saltgrass

*Land capability subclass (irrigated): 3s*

*Land capability subclass (nonirrigated): 4s*

*Typical Profile:*

Ap—0 to 3 inches; silty clay loam

Btk—3 to 6 inches; clay

Btky—6 to 18 inches; silty clay

Btkg—18 to 30 inches; clay

Bkg—30 to 36 inches; clay loam

Cg—36 to 66 inches; loam

### **Minor Components**

#### **Baca and similar soils**

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Tread, rise

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils are leached of carbonates in the surface and do not have a water table.

#### **Wapiti and similar soils**

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have less than 35 percent clay and do not have a water table.

### **Major Uses**

Irrigated cropland

### **Major Management Limitations**

These soils are found below or adjacent to irrigation ditches and ponds. The water table fluctuates between 1 to 3 feet and can affect crop production, construction, and septic systems during the summer months.

## **MoA—Mauricanyon loam, 0 to 2 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 49

*Elevation:* 6,000 to 6,800 feet (1,829 to 2,073 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 47 to 52 degrees F. (8.4 to 11.0 degrees C.)

*Frost-free period:* 120 to 140 days

*Note:* Located in major drainageways at lower elevations of the foothills. Irrigated areas have a clay loam surface.

### Map Unit Composition

Mauricanyon and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Mauricanyon soils

*Landscape:* River valleys, foothills

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Parent material:* Loamy alluvium derived from sandstone and shale

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.8 inches (high)

*Shrink-swell potential:* About 2.2 percent (low)

*Flooding hazard:* Rare

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Overflow

*Potential native vegetation:* western wheatgrass, green needlegrass, switchgrass,

blue grama, sand dropseed, yellow Indiangrass, American vetch, fourwing

saltbush, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2c

*Land capability subclass (nonirrigated):* 3c

#### Typical Profile:

A1—0 to 3 inches; loam

A2—3 to 8 inches; loam

Bw—8 to 25 inches; clay loam

Bk—25 to 72 inches; loam

#### Minor Components

Trementina, cool and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Clayey Foothill

*Distinguishing characteristics:* These soils have more than 50 percent silt and less sand.

Collegiate and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Drainageways, flood plains

*Position on landform:* Tread, talf

*Slope:* 1 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Somewhat poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have a seasonal water table.

### **Major Uses**

Rangeland, irrigated cropland, hay and pasture, wildlife habitat

## **MoB—Mauricanyon loam, 0 to 2 percent slopes, dry**

### **Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 5,500 feet (1,372 to 1,676 meters)

*Mean annual precipitation:* 13 to 14 inches (331 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located along major drainageways in the northeastern part of the county.

### **Map Unit Composition**

Mauricanyon, dry and similar soils: 85 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Mauricanyon, dry soils**

*Landscape:* Canyonlands, plains

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Loamy alluvium derived from sandstone and shale

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.3 inches (high)

*Shrink-swell potential:* About 2.5 percent (low)

*Flooding hazard:* Rare

*Calcium carbonate maximum:* About 6 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* western wheatgrass, green needlegrass, blue grama, sand dropseed, winterfat, American vetch, buffalograss, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2c

*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*

A1—0 to 10 inches; loam

A2—10 to 21 inches; loam

Bw1—21 to 28 inches; loam

Bw2—28 to 40 inches; loam

Bk—40 to 68 inches; loam

### **Minor Components**

Trementina, dry and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands, plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have more than 50 percent silt and less sand.

Glenberg and similar soils

*Composition:* About 5 percent

*Landscape:* River valleys

*Landform:* Flood plains, terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Occasional

*Ecological site:* Sandy Bottomland

*Distinguishing characteristics:* These soils have less than 18 percent clay and more sand.

### **Major Uses**

Irrigated cropland, rangeland, wildlife habitat



## **MoR—Mion-Rock outcrop complex, 10 to 75 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.5 degrees C.)

*Frost-free period:* 125 to 145 days

*Note:* Located south of Trinchera on the New Mexico state line. This map unit consists of one delineation to match Colfax County, New Mexico

### **Map Unit Composition**

Mion and similar soils: 65 percent

Rock outcrop: 25 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Mion soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, side slope

*Parent material:* Slope alluvium and residuum weathered from shale

*Slope:* 10 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 6 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 7.5 percent (high)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 15 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 15 (moderately sodic)

*Ecological site:* Shaly Foothill

*Potential native vegetation:* western wheatgrass, blue grama, sideoats grama, little bluestem, big bluestem, fourwing saltbush, Gambel's oak, true mountain mahogany, winterfat

*Land capability subclass (irrigated):* 7e

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 4 inches; silt loam

AC—4 to 14 inches; silty clay

Cr—14 to 60 inches; bedrock

### **Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed sandstone bedrock.

*Landscape:* Foothills

*Landform:* Hills

*Parent material:* Sandstone

*Slope:* 10 to 75 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

### **Minor Components**

Ritoazul and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Pediments

*Position on landform:* Rise

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to shale bedrock.

### **Major Uses**

Rangeland, wildlife habitat

## **MP—Midway-Razor-Rock outcrop Complex, 1 to 15 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the north-central part of the county near Thatcher, Delhi, and the Pinon Canyon area.

### **Map Unit Composition**

Midway and similar soils: 40 percent

Razor and similar soils: 35 percent

Rock outcrop: 15 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Midway soils**

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Side slope, rise

*Parent material:* Slope alluvium and residuum weathered from shale

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.0 inches (very low)

*Shrink-swell potential:* About 7.2 percent (high)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 15 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 15 (moderately sodic)

*Ecological site:* Shaly Plains

*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, sideoats grama, fourwing saltbush, green needlegrass, winterfat, little bluestem, American vetch

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 5 inches; gravelly clay loam

Bk—5 to 12 inches; clay

Cr—12 to 60 inches; bedrock

**Razor soils**

*Landscape:* Plains

*Landform:* Plains, pediments

*Position on landform:* Rise

*Parent material:* Alluvium over residuum weathered from gypsiferous shale

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 5.3 inches (low)

*Shrink-swell potential:* About 7.4 percent (high)

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 14 mmhos/cm (moderately saline)

*Sodium adsorption ratio maximum:* About 15 (moderately sodic)

*Ecological site:* Clayey

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, galleta, green needlegrass, alkali sacaton, winterfat, American vetch

*Land capability subclass (irrigated):* 3s

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 5 inches; silty clay loam

Bw—5 to 15 inches; silty clay

Bc—15 to 21 inches; silty clay

C—21 to 29 inches; silty clay

Cr—29 to 60 inches; bedrock

### **Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed Thatcher limestone that occurs as ridges along the crest of hills and cuestas.

*Landscape:* Plains

*Landform:* Scarps, ridges

*Parent material:* Limestone

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

### **Minor Components**

Minnequa and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Pediments, plains

*Position on landform:* Rise

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are similar to Razor soils, but have less than 35 percent clay content.

Shingle and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Rise, head slope, side slope

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Shaly Plains

*Distinguishing characteristics:* These soils are similar to Midway soils, but have less than 35 percent clay content.

### **Major Uses**

Rangeland, wildlife habitat

## **MR—Mirror-Rock outcrop complex, 40 to 70 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 11,000 to 12,500 feet (3,353 to 3,810 meters)

*Mean annual precipitation:* 30 to 40 inches (762 to 1,016 millimeters)

*Mean annual air temperature:* 32 to 35 degrees F. (0.0 to 1.5 degrees C.)

*Frost-free period:* 10 to 45 days

*Note:* Located in the tundra of the Sangre de Cristo mountains.

### **Map Unit Composition**

Mirror and similar soils: 70 percent

Rock outcrop: 20 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Mirror soils**

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank, upper third

*Parent material:* Colluvium and residuum weathered from monzonite and diorite

*Slope:* 40 to 60 percent

*Aspect:* North to south

*Shape (down/across):* Linear/convex

*Surface fragments:* About 5 percent subangular stones, about 5 percent subangular cobbles, about 40 percent subangular gravel

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 1.1 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Alpine Slopes

*Potential native vegetation:* kobresia, tufted hairgrass, willow, alpine bluegrass, purple reedgrass, sedge, arctic bluegrass, spike trisetum, wheatgrass, alpine sagebrush

*Land capability subclass (nonirrigated):* 7e

#### *Typical Profile:*

A—0 to 10 inches; extremely cobbly loam

Bw—10 to 25 inches; extremely cobbly loam

R—25 to 60 inches; bedrock

#### **Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed monzonite and diorite.

*Landscape:* Mountains

*Landform:* Scarps

*Parent material:* Igneous rock

*Slope:* 50 to 70 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

#### **Minor Components**

Moran and similar soils

*Composition:* About 10 percent

*Landscape:* Mountains

*Landform:* Mountains  
*Position on landform:* Mountaintop  
*Slope:* 40 to 60 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/linear  
*Drainage class:* Somewhat excessively drained  
*Ecological site:* Alpine Slopes  
*Distinguishing characteristics:* These soils are greater than 60 inches to igneous bedrock.

### Major Uses

Grazing land, wildlife habitat

## MvC—Manvel silt loam, 1 to 5 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69  
*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)  
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
*Frost-free period:* 130 to 155 days  
*Note:* Located in the north-central part of the county near Earl, Model, Thatcher and Delhi. Steeper slopes have deposits of gravel on the surface and may have deep gullies.

### Map Unit Composition

Manvel and similar soils: 90 percent  
 Minor components: 10 percent

### Component Descriptions

#### Manvel soils

*Landscape:* Plains  
*Landform:* Fans, plains  
*Position on landform:* Rise  
*Parent material:* Silty alluvium derived from limestone and shale  
*Slope:* 1 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)  
*Available water capacity:* About 9.5 inches (high)  
*Shrink-swell potential:* About 2.5 percent (low)  
*Calcium carbonate maximum:* About 40 percent  
*Gypsum maximum:* About 5 percent  
*Salinity maximum:* About 4 mmhos/cm (very slightly saline)  
*Sodium adsorption ratio maximum:* About 5 (slightly sodic)  
*Ecological site:* Loamy  
*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated): 3e*

*Land capability subclass (nonirrigated): 6e*

*Typical Profile:*

A—0 to 4 inches; silt loam

AC—4 to 12 inches; silt loam

C—12 to 60 inches; silt loam

### **Minor Components**

Minnequa and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Pediments, plains

*Position on landform:* Rise

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to shale and limestone bedrock.

Manzanola and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Talf

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have more than 35 percent clay content and a well-developed subsoil.

### **Major Uses**

Rangeland, wildlife habitat

## **MyD—Midway clay loam, 3 to 15 percent slopes, gullied**

### **Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the central and eastern parts of the county near Thatcher, Delhi, Hoehne, and north of Andrix.



### Map Unit Composition

Midway and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Midway soils

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Rise, side slope, head slope

*Parent material:* Slope alluvium over residuum weathered from shale

*Slope:* 3 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 7.5 percent (high)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 15 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 15 (moderately sodic)

*Ecological site:* Shaly Plains

*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, sideoats grama, fourwing saltbush, green needlegrass, winterfat, little bluestem, American vetch

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

A—0 to 3 inches; clay loam

AC—3 to 8 inches; silty clay

C—8 to 14 inches; silty clay

Cr—14 to 24 inches; bedrock

#### Minor Components

Razor and similar soils

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Side slope, rise, head slope

*Slope:* 3 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Clayey

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to shale bedrock.

Shingle and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, pediments  
*Position on landform:* Head slope, side slope, rise  
*Slope:* 3 to 15 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/linear  
*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic  
*Drainage class:* Well drained  
*Ecological site:* Shaly Plains  
*Distinguishing characteristics:* These soils have less than 35 percent clay content.

#### Rock outcrop

*Composition:* About 1 percent  
*Landscape:* Plains  
*Landform:* Scarps  
*Slope:* 3 to 15 percent  
*Aspect:* All aspects  
*Depth to restrictive feature:* 0 inches to bedrock, paralithic  
*Distinguishing characteristics:* Rock outcrop consists of areas of exposed shale and limestone.

### Major Uses

Rangeland, wildlife habitat

## MzA—Manzanola silty clay loam, 0 to 1 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69  
*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)  
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
*Frost-free period:* 130 to 155 days  
*Note:* Located in drainageways in the plains north and east of Trinidad and north of Trinchera.

### Map Unit Composition

Manzanola and similar soils: 85 percent  
 Minor components: 15 percent

### Component Descriptions

#### Manzanola soils

*Landscape:* Plains  
*Landform:* Drainageways, terraces  
*Position on landform:* Talf, tread  
*Parent material:* Clayey alluvium derived from shale  
*Slope:* 0 to 1 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Slowest permeability:* .06 to 0.2 in/hr (slow)  
*Available water capacity:* About 9.8 inches (high)  
*Shrink-swell potential:* About 6.3 percent (high)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 15 (moderately sodic)

*Ecological site:* Saline Overflow

*Potential native vegetation:* alkali sacaton, western wheatgrass, fourwing saltbush, blue grama, vine mesquite, galleta, switchgrass, American vetch

*Land capability subclass (irrigated):* 2s

*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*

A—0 to 3 inches; silty clay loam

Bt1—3 to 10 inches; silty clay

Bt2—10 to 16 inches; silty clay

Btk—16 to 27 inches; silty clay

Bk—27 to 32 inches; silty clay loam

Bkny1—32 to 38 inches; silty clay loam

Bkny2—38 to 67 inches; silty clay loam

### **Minor Components**

Haversid and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Saline Overflow

*Distinguishing characteristics:* These soils have less than 35 percent clay content and do not have a developed subsoil.

Aguilar and similar soils

*Composition:* About 5 percent

*Landscape:* River valleys

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 2 to 6 inches to natric

*Drainage class:* Well drained

*Ecological site:* Salt Flat

*Distinguishing characteristics:* These soils have accumulations of sodium salts.

### **Major Uses**

Irrigated cropland, rangeland, wildlife habitat

## **MzB—Manzanola silty clay loam, 1 to 4 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located throughout the plains north and east of Trinidad.

### **Map Unit Composition**

Manzanola and similar soils: 85 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Manzanola soils**

*Landscape:* Plains

*Landform:* Plains, fans

*Position on landform:* Talf

*Parent material:* Loess and alluvium derived from calcareous shale

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.7 inches (high)

*Shrink-swell potential:* About 6.6 percent (high)

*Calcium carbonate maximum:* About 25 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 5 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 8 (slightly sodic)

*Ecological site:* Clayey

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6c

#### *Typical Profile:*

A—0 to 5 inches; silty clay loam

Bt—5 to 17 inches; silty clay

Btk—17 to 30 inches; silty clay

Bk—30 to 50 inches; silty clay loam

Bky—50 to 70 inches; silty clay loam

#### **Minor Components**

Wilid and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

**Ravine and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Pediments, plains*Position on landform:* Rise*Slope:* 1 to 4 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic*Drainage class:* Well drained*Ecological site:* Loamy*Distinguishing characteristics:* These soils are 20 to 40 inches deep to shale bedrock.**Major Uses**

Irrigated cropland, rangeland, wildlife habitat

**NM—Nopurg-Mitotes complex, 10 to 40 percent slopes, stony****Map Unit Setting***Major Land Resource Area:* 48A*Elevation:* 8,500 to 10,500 feet (2,591 to 3,200 meters)*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)*Mean annual air temperature:* 38 to 40 degrees F. (3.5 to 4.5 degrees C.)*Frost-free period:* 40 to 70 days*Note:* Located on mountain slopes of the Spanish Peaks and Cordova Pass.**Map Unit Composition**

Nopurg and similar soils: 45 percent

Mitotes and similar soils: 40 percent

Minor components: 15 percent

**Component Descriptions****Nopurg soils***Landscape:* Mountains*Landform:* Mountain slopes*Position on landform:* Mountainflank*Parent material:* Alluvium and colluvium derived from metamorphic and sedimentary rock*Slope:* 20 to 40 percent*Aspect:* North to south*Shape (down/across):* Linear/linear*Surface fragments:* About 5 percent subrounded stones, about 10 percent subrounded cobbles*Depth class:* Very deep*Drainage class:* Well drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 5.1 inches (low)*Shrink-swell potential:* About 3.5 percent (moderate)*Calcium carbonate maximum:* None*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* *Pseudotsuga menziesii*-*Abies concolor*/*Quercus gambelii*-

*Symphoricarpos albus*/*Festuca arizonica*-*Carex geyeri*

*Potential native vegetation:*

Common trees: white fir, Engelmann's spruce, Rocky Mountain Douglas fir

Other plants: Parry's danthonia, Thurber's fescue, Arizona fescue, mountain brome, common juniper, elk sedge, grouse whortleberry, grouse whortleberry, mountain muhly, russet buffaloberry, Woods' rose

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

Oi—0 to 1 inch; slightly decomposed plant material

E—1 inch to 12 inches; cobbly sandy loam

B/E—12 to 24 inches; very cobbly sandy clay loam

Bt1—24 to 35 inches; very cobbly sandy clay

Bt2—35 to 72 inches; very cobbly clay

### **Mitotes soils**

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Slope alluvium and colluvium derived from metamorphic and sedimentary rock

*Slope:* 10 to 40 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Surface fragments:* About 1 percent subrounded stones, about 15 percent subrounded gravel

*Depth class:* Very deep

*Depth to restrictive feature:* 48 to 60 inches to strongly contrasting textural stratification

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 7.1 inches (moderate)

*Shrink-swell potential:* About 3.4 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* *Pseudotsuga menziesii*-*Abies concolor*/*Quercus gambelii*-

*Symphoricarpos albus*/*Festuca arizonica*-*Carex geyeri*

*Potential native vegetation:*

Common trees: white fir, Engelmann's spruce, Rocky Mountain Douglas fir

Other plants: Parry's danthonia, Thurber's fescue, Arizona fescue, elk sedge, Woods' rose, common juniper, common snowberry, grouse whortleberry, mountain brome, mountain muhly

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oe—0 to 1 inch; moderately decomposed plant material

E—1 inch to 15 inches; sandy loam

E/B—15 to 21 inches; cobbly sandy clay loam

Bt1—21 to 32 inches; cobbly sandy clay

Bt2—32 to 51 inches; cobbly clay loam  
 2C—51 to 72 inches; stony sandy loam

### Minor Components

Leadville and similar soils

*Composition:* About 10 percent

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Slope:* 15 to 40 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-  
 Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Distinguishing characteristics:* These soils have less than 35 percent clay content and more sand in the profile.

Davtone and similar soils

*Composition:* About 5 percent

*Landscape:* Mountains

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 10 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy Park

*Distinguishing characteristics:* These soils have less than 35 percent clay content and a thick dark surface layer.

### Major Uses

Woodland, recreation, wildlife habitat

## OeC—Otero sandy loam, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located predominantly east of Kim to the Baca County line and along the Dry Cimarron drainage.

### Map Unit Composition

Otero and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Otero soils

*Landscape:* Plains

*Landform:* Plains, hills, ridges



*Position on landform:* Head slope, rise, side slope

*Parent material:* Eolian deposits

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 6.5 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 4 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy (formerly Sandy Plains)

*Potential native vegetation:* blue grama, prairie sandreed, needleandthread, sand bluestem, sideoats grama, switchgrass, western wheatgrass, little bluestem, sand dropseed, spreading buckwheat, sun sedge, American vetch, dotted gayfeather, sand sagebrush, western sandcherry

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 3 inches; sandy loam

AC—3 to 10 inches; sandy loam

C1—10 to 19 inches; sandy loam

Bk—19 to 30 inches; sandy loam

C2—30 to 40 inches; fine sandy loam

C3—40 to 65 inches; sandy loam

### **Minor Components**

Valent and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Dunes, hills

*Position on landform:* Crest, head slope

*Slope:* 2 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Excessively drained

*Ecological site:* Sands (formerly Deep Sands)

*Distinguishing characteristics:* These soils have predominantly loamy sand or sand textures.

Vona and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Head slope, side slope

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Somewhat excessively drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have a developed subsoil.

#### Kandrix and similar soils

*Composition:* About 4 percent

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Side slope, head slope

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less sand and more than 18 percent clay content.

#### Blown-out land

*Composition:* About 1 percent

*Landscape:* Plains

*Landform:* Hills

*Position on landform:* Crest

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Excessively drained

*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.

### Major Uses

Rangeland, nonirrigated cropland, wildlife habitat

## OtD—Oterodry fine sandy loam, 1 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located northeast of Aguilar along the Huerfano County line.

### Map Unit Composition

Oterodry and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Oterodry soils

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Side slope, head slope

*Parent material:* Eolian deposits

*Slope:* 1 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 7.8 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, little bluestem, needleandthread, sand dropseed, sideoats grama, western wheatgrass, fourwing saltbush, sand sagebrush, sun sedge, American vetch, spreading buckwheat

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 11 inches; fine sandy loam

AC—11 to 25 inches; fine sandy loam

Bk—25 to 60 inches; fine sandy loam

**Minor Components**

Fort and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Fans, hills, ridges

*Position on landform:* Rise, side slope

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils have more than 18 percent clay content and a well-developed subsoil.

Kimera and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Head slope, side slope

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have more than 18 percent clay content.

**Major Uses**

Rangeland, wildlife habitat

## OyB—Olnest sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 5,700 feet (1,524 to 1,737 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located east of Kim to the Baca County line.

### Map Unit Composition

Olnest and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Olnest soils

*Landscape:* Plains

*Landform:* Hills, plains

*Position on landform:* Base slope, interfluvium, talus

*Parent material:* Eolian deposits

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.1 inches (high)

*Shrink-swell potential:* About 1.6 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy (formerly Sandy Plains)

*Potential native vegetation:* blue grama, prairie sandreed, needleandthread, sand bluestem, little bluestem, switchgrass, western wheatgrass, sideoats grama, sun sedge, western sandcherry, American vetch, sand dropseed, sand sagebrush, spreading buckwheat, dotted gayfeather

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

#### Typical Profile:

A—0 to 4 inches; sandy loam

Bt1—4 to 14 inches; sandy clay loam

Bt2—14 to 20 inches; sandy clay loam

Bk1—20 to 28 inches; sandy loam

Bk2—28 to 48 inches; sandy loam

Bk3—48 to 60 inches; very fine sandy loam

#### Minor Components

Vona and similar soils

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Ridges, plains

*Position on landform:* Base slope, side slope, talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Somewhat excessively drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have less than 18 percent clay content.

#### Blown-out land

*Composition:* About 1 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Excessively drained

*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.

#### Major Uses

Nonirrigated cropland, rangeland, wildlife habitat

## OyC—Olnest sandy loam, 3 to 7 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 5,700 feet (1,524 to 1,737 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located east of Kim to the Baca County line.

#### Map Unit Composition

Olnest and similar soils: 85 percent

Minor components: 15 percent

#### Component Descriptions

##### Olnest soils

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Side slope, base slope, rise

*Parent material:* Eolian deposits

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.1 inches (high)

*Shrink-swell potential:* About 1.6 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy (formerly Sandy Plains)

*Potential native vegetation:* blue grama, prairie sandreed, needleandthread, sand bluestem, little bluestem, switchgrass, western wheatgrass, sideoats grama, sun sedge, western sandcherry, American vetch, sand dropseed, sand sagebrush, spreading buckwheat, dotted gayfeather

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 4 inches; sandy loam

Bt1—4 to 14 inches; sandy clay loam

Bt2—14 to 20 inches; sandy clay loam

Bk1—20 to 28 inches; sandy loam

Bk2—28 to 48 inches; sandy loam

Bk3—48 to 60 inches; very fine sandy loam

### **Minor Components**

**Vona and similar soils**

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Side slope, head slope

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Somewhat excessively drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have less than 18 percent clay content.

**Otero and similar soils**

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Side slope, rise, head slope

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have less than 18 percent clay and do not have a developed subsoil.

**Blown-out land**

*Composition:* About 1 percent

*Landscape:* Plains

*Landform:* Hills

*Position on landform:* Crest

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Excessively drained

*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.

### Major Uses

Nonirrigated cropland, rangeland, wildlife habitat

## PeD—Penrose loam, 1 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in the north-central and northeastern parts of the county near Model, Thatcher, and Delhi.

### Map Unit Composition

Penrose and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Penrose soils

*Landscape:* Plains

*Landform:* Scarps

*Position on landform:* Crest

*Parent material:* Slope alluvium over residuum weathered from limestone

*Slope:* 1 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 10 percent angular channers

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 1.7 percent (low)

*Calcium carbonate maximum:* About 75 percent

*Gypsum maximum:* About 1 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Limestone Breaks

*Potential native vegetation:* sideoats grama, little bluestem, big bluestem, switchgrass, blue grama, needleandthread, western wheatgrass, yellow Indiangrass, green needlegrass, winterfat, dotted gayfeather, purple prairieclover, skunkbush sumac

*Land capability subclass (nonirrigated):* 6s

#### Typical Profile:

A—0 to 5 inches; loam

AC—5 to 9 inches; loam

C—9 to 15 inches; channery loam

R—15 to 26 inches; bedrock



### Minor Components

#### Minnequa and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Pediments, plains

*Position on landform:* Rise

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to soft shale and limestone bedrock.

#### Shingle and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Side slope, head slope, rise

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Shaly Plains

*Distinguishing characteristics:* These soils are less than 20 inches deep to soft shale bedrock.

#### Rock outcrop

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Scarps

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed limestone.

### Major Uses

Rangeland, wildlife habitat

## PeF—Penrose-Midway-Rock outcrop complex, 10 to 40 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the north-central and northeastern part of the county near Model, Thatcher, and Delhi.

### Map Unit Composition

Penrose and similar soils: 40 percent  
Midway and similar soils: 35 percent  
Rock outcrop: 15 percent  
Minor components: 10 percent

### Component Descriptions

#### Penrose soils

*Landscape:* Plains

*Landform:* Mesas, cuestas

*Position on landform:* Crest

*Parent material:* Slope alluvium over residuum weathered from limestone

*Slope:* 10 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 10 percent angular channers

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 1.7 percent (low)

*Calcium carbonate maximum:* About 75 percent

*Gypsum maximum:* About 1 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Limestone Breaks

*Potential native vegetation:* sideoats grama, little bluestem, big bluestem, switchgrass, blue grama, needleandthread, western wheatgrass, yellow Indiangrass, green needlegrass, winterfat, dotted gayfeather, purple prairieclover, skunkbush sumac

*Land capability subclass (nonirrigated):* 6s

#### *Typical Profile:*

A—0 to 5 inches; loam

AC—5 to 9 inches; loam

C—9 to 15 inches; channery loam

R—15 to 26 inches; bedrock

#### Midway soils

*Landscape:* Plains

*Landform:* Hills, mesas, pediments

*Position on landform:* Rise, side slope

*Parent material:* Slope alluvium over residuum weathered from shale

*Slope:* 20 to 40 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)  
*Available water capacity:* About 2.0 inches (very low)  
*Shrink-swell potential:* About 7.5 percent (high)  
*Calcium carbonate maximum:* About 15 percent  
*Gypsum maximum:* About 15 percent  
*Salinity maximum:* About 8 mmhos/cm (slightly saline)  
*Sodium adsorption ratio maximum:* About 15 (moderately sodic)  
*Ecological site:* Shale Breaks  
*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, sideoats grama, fourwing saltbush, green needlegrass, winterfat, little bluestem, American vetch  
*Land capability subclass (irrigated):* 7e  
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 3 inches; clay  
 AC—3 to 10 inches; clay  
 Bk—10 to 13 inches; clay  
 Cr—13 to 40 inches; bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed limestone typically at the crest of mesas and cuestas.  
*Landscape:* Plains  
*Landform:* Scarps  
*Position on landform:* Crest  
*Parent material:* Limestone  
*Slope:* 10 to 40 percent  
*Aspect:* All aspects  
*Depth to restrictive feature:* 0 inches to bedrock, lithic  
*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Razor and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Pediments  
*Position on landform:* Rise  
*Slope:* 5 to 15 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/convex  
*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic  
*Drainage class:* Well drained  
*Ecological site:* Clayey  
*Distinguishing characteristics:* These soils are similar to Midway soils but are 20 to 40 inches deep to shale bedrock.

Minnequa and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Pediments, plains

*Position on landform:* Rise

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils average less than 35 percent clay and are 20 to 40 inches deep to soft limestone and shale bedrock.

### Major Uses

Rangeland, wildlife habitat

## PM—Penrose-Minnequa complex, 2 to 15 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the central and north-central part of the county.

### Map Unit Composition

Penrose and similar soils: 50 percent

Minnequa and similar soils: 35 percent

Minor components: 15 percent

### Component Descriptions

#### Penrose soils

*Landscape:* Plains

*Landform:* Scarps, cuestas

*Position on landform:* Crest

*Parent material:* Slope alluvium over residuum weathered from limestone

*Slope:* 2 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 10 percent angular channers

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 1.7 percent (low)

*Calcium carbonate maximum:* About 75 percent

*Gypsum maximum:* About 1 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Limestone Breaks

*Potential native vegetation:* sideoats grama, little bluestem, big bluestem, switchgrass, blue grama, needleandthread, western wheatgrass, yellow Indiangrass, green needlegrass, winterfat, dotted gayfeather, purple prairieclover, skunkbush sumac  
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

- A—0 to 5 inches; loam
- AC—5 to 9 inches; loam
- C—9 to 15 inches; channery loam
- R—15 to 26 inches; bedrock

**Minnequa soils**

*Landscape:* Plains

*Landform:* Pediments, plains

*Position on landform:* Rise

*Parent material:* Slope alluvium over residuum weathered from limestone and shale

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.7 inches (low)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* About 39 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 8 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

- A—0 to 4 inches; silt loam
- Bk1—4 to 14 inches; silty clay loam
- Bk2—14 to 24 inches; silty clay loam
- Cr1—24 to 29 inches; bedrock
- Cr2—29 to 60 inches; bedrock

**Minor Components**

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Scarps, ridges

*Slope:* 3 to 15 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed limestone that occurs along the crest of hills and cuestas.

**Shingle and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Hills, pediments*Position on landform:* Head slope, side slope, rise*Slope:* 3 to 9 percent*Aspect:* All aspects*Shape (down/across):* Convex/linear*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic*Drainage class:* Well drained*Ecological site:* Shaly Plains*Distinguishing characteristics:* These soils are less than 20 inches deep to shale bedrock.**Manvel and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Fans, plains*Position on landform:* Tread, rise*Slope:* 2 to 6 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Loamy*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.**Major Uses**

Rangeland, wildlife habitat

**PnD—Penrose loam, moist, 2 to 15 percent slopes****Map Unit Setting***Major Land Resource Area:* 67*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)*Frost-free period:* 130 to 155 days*Note:* Located in the eastern parts of the county near Tobe, Villegreen, Andrix and north of Branson.**Map Unit Composition**

Penrose, moist and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Penrose, moist soils***Landscape:* Plains*Landform:* Scarps*Position on landform:* Crest*Parent material:* Slope alluvium and residuum weathered from limestone

*Slope:* 2 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 5 percent angular channers

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.3 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 75 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 10 (slightly sodic)

*Ecological site:* Limestone Breaks

*Potential native vegetation:* sideoats grama, little bluestem, big bluestem, switchgrass, blue grama, needleandthread, western wheatgrass, yellow Indiangrass, green needlegrass, winterfat, dotted gayfeather, purple prairieclover, skunkbush sumac

*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

A—0 to 4 inches; loam

C—4 to 10 inches; channery loam

R—10 to 60 inches; bedrock

### **Minor Components**

Minqwet and similar soils

*Composition:* About 8 percent

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Side slope, rise

*Slope:* 2 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to soft limestone and shale bedrock.

Shingle and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Rise, side slope

*Slope:* 2 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Shaly Plains

*Distinguishing characteristics:* These soils are less than 20 inches deep to soft shale bedrock.



**Rock outcrop***Composition:* About 2 percent*Landscape:* Plains*Landform:* Scarps*Slope:* 2 to 15 percent*Aspect:* All aspects*Depth to restrictive feature:* 0 inches to bedrock, lithic*Distinguishing characteristics:* Rock outcrop consists of areas of exposed limestone.**Major Uses**

Rangeland, wildlife habitat

**RaB—Ravine silty clay loam, 1 to 5 percent slopes****Map Unit Setting***Major Land Resource Area:* 69*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)*Frost-free period:* 135 to 155 days*Note:* Located in the central part of the county near Model and Delhi.**Map Unit Composition**

Ravine and similar soils: 85 percent

Minor components: 15 percent

**Component Descriptions****Ravine soils***Landscape:* Plains*Landform:* Pediments, plains*Position on landform:* Rise*Parent material:* Clayey alluvium over residuum weathered from shale*Slope:* 1 to 5 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth class:* Moderately deep*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic*Drainage class:* Well drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 5.1 inches (low)*Shrink-swell potential:* About 7.5 percent (high)*Calcium carbonate maximum:* About 35 percent*Gypsum maximum:* About 5 percent*Salinity maximum:* About 6 mmhos/cm (slightly saline)*Sodium adsorption ratio maximum:* About 10 (slightly sodic)*Ecological site:* Loamy*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated): 3s*

*Land capability subclass (nonirrigated): 6e*

*Typical Profile:*

- A—0 to 3 inches; silty clay loam
- Btk1—3 to 14 inches; silty clay loam
- Btk2—14 to 21 inches; silty clay
- Btk3—21 to 28 inches; silty clay
- Cr—28 to 60 inches; bedrock

**Minor Components**

Manzanola and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Talf

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are greater than 60 inches deep to shale bedrock.

Midway and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Head slope, rise, side slope

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth to restrictive feature:* 6 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Shaly Plains

*Distinguishing characteristics:* These soils are less than 20 inches deep to shale bedrock.

Minnequa and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Pediments, plains

*Position on landform:* Rise

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

**Major Uses**

Rangeland, wildlife habitat

## **RaC—Ritoazul silty clay, 0 to 4 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 67, 70

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 120 to 155 days

*Note:* Located in the south-central and eastern part of the county near Branson, Trinchera, and north of Andrix.

### **Map Unit Composition**

Ritoazul and similar soils: 85 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Ritoazul soils**

*Landscape:* Plains

*Landform:* Structural benches, pediments

*Position on landform:* Rise

*Parent material:* Alluvium and residuum weathered from shale

*Slope:* 0 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 6.0 inches (low)

*Shrink-swell potential:* About 6.6 percent (high)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* About 25 percent

*Salinity maximum:* About 3 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Clayey (formerly Clayey Plains)

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, green needlegrass, American vetch, buffalograss, winterfat

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

#### *Typical Profile:*

A—0 to 3 inches; silty clay

Bss1—3 to 18 inches; silty clay

Bss2—18 to 29 inches; silty clay

BCK—29 to 33 inches; silty clay

B/Cr—33 to 36 inches; silty clay loam

Cr—36 to 60 inches; bedrock

#### **Minor Components**

Manzanst and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Fans, plains  
*Position on landform:* Talf  
*Slope:* 0 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Clayey (formerly Clayey Plains)  
*Distinguishing characteristics:* These soils are greater than 60 inches to shale bedrock.

#### Midway and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Hills, pediments  
*Position on landform:* Head slope, rise, side slope  
*Slope:* 2 to 4 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/convex  
*Depth to restrictive feature:* 6 to 20 inches to bedrock, paralithic  
*Drainage class:* Well drained  
*Ecological site:* Shaly Plains  
*Distinguishing characteristics:* These soils are less than 20 inches to shale bedrock.

#### Major Uses

Rangeland, wildlife habitat

### **RB—Raton-Barela complex, 3 to 15 percent slopes, very stony**

#### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 8,000 to 9,000 feet (2,438 to 2,743 meters)  
*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)  
*Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)  
*Frost-free period:* 80 to 100 days  
*Note:* Located on the Barela mesa along the New Mexico state line.

#### Map Unit Composition

Raton and similar soils: 65 percent  
 Barela and similar soils: 25 percent  
 Minor components: 10 percent

#### Component Descriptions

##### **Raton soils**

*Landscape:* Lava plateaus  
*Landform:* Lava plateaus, scarps  
*Position on landform:* Crest, head slope  
*Parent material:* Colluvium and residuum weathered from basalt  
*Slope:* 3 to 15 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/convex

*Surface fragments:* About 4 percent subangular cobbles, about 5 percent subrounded stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 1.7 inches (very low)

*Shrink-swell potential:* About 2.7 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Loam

*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, western wheatgrass, Gambel's oak, pine dropseed, Sandberg bluegrass, true mountain mahogany, nodding brome, fringed sagewort, muttongrass, prairie junegrass

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A1—0 to 6 inches; cobbly loam

A2—6 to 9 inches; very cobbly clay loam

Bt—9 to 17 inches; very stony clay

R—17 to 60 inches; bedrock

**Barela soils**

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Position on landform:* Rise

*Parent material:* Alluvium and residuum weathered from basalt

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 1 percent subrounded stones

*Depth class:* Deep

*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 6.0 inches (moderate)

*Shrink-swell potential:* About 3.5 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy Park

*Potential native vegetation:* Arizona fescue, Parry's danthonia, mountain muhly, western wheatgrass, fringed sagewort, mountain brome, Sandberg bluegrass, Letterman's needlegrass, American vetch, prairie junegrass

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 5 inches; silt loam

AB—5 to 11 inches; silt loam

Bt1—11 to 16 inches; stony silty clay loam

Bt2—16 to 20 inches; gravelly silty clay loam  
 Bt3—20 to 30 inches; gravelly silty clay  
 Bt4—30 to 36 inches; cobbly silty clay  
 Bt5—36 to 48 inches; very stony clay  
 R—48 to 60 inches; bedrock

### Minor Components

Cumulic Cryaquolls and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Drainageways

*Position on landform:* Dip

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Poorly drained

*Flooding hazard:* Occasional

*Ecological site:* Mountain Meadow

*Distinguishing characteristics:* These soils have a water table.

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed basalt.

### Major Uses

Rangeland, recreation, wildlife habitat

## Rc—Raku silt loam, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the eastern part of the county near Branson, Tobe, Villegreen and Kim.

### Map Unit Composition

Raku and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Raku soils

*Landscape:* Plains

*Landform:* Plains, drainageways, depressions

*Position on landform:* Talf, dip

*Parent material:* Alluvium and loess

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.9 inches (high)

*Shrink-swell potential:* About 5.1 percent (moderate)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, buffalograss, winterfat, American vetch, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 8 inches; silt loam

Bt1—8 to 11 inches; silty clay loam

Bt2—11 to 22 inches; silty clay

Bt3—22 to 28 inches; silty clay

Btk—28 to 45 inches; silty clay loam

Bk—45 to 68 inches; clay loam

**Minor Components**

Wiley and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 35 percent clay content and do not have a thick dark surface layer.

Calemore and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 35 percent clay content in the profile.



Trementina, warm and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Clayey Foothill

*Distinguishing characteristics:* These soils have less than 35 percent clay content in the profile and do not have a developed subsoil.

### Major Uses

Nonirrigated cropland, rangeland, wildlife habitat

## RcA—Raku silt clay loam, 0 to 1 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,700 to 6,000 feet (1,737 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in the irrigated areas from Trinidad to Hoehne along the Purgatoire River. These soils have a thick dark more clayey surface horizon formed from muddy irrigation water.

### Map Unit Composition

Raku and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Raku soils

*Landscape:* Plains

*Landform:* Terraces, drainageways

*Position on landform:* Dip, tread

*Parent material:* Silty and clayey alluvium from irrigation water over clayey alluvium derived from sedimentary rock

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 10.9 inches (high)

*Shrink-swell potential:* About 5.8 percent (moderate)

*Calcium carbonate maximum:* About 25 percent

*Gypsum maximum:* None

*Salinity maximum:* About 1 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 1 (slightly sodic)

*Ecological site:* Clayey (formerly Clayey Plains)

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, green needlegrass, American vetch, winterfat, buffalograss

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

Ap—0 to 3 inches; silty clay loam

Bt1—3 to 11 inches; clay

Bt2—11 to 18 inches; clay

Bt3—18 to 34 inches; clay

Btk—34 to 41 inches; clay

Bk1—41 to 48 inches; clay loam

Bk2—48 to 66 inches; silt loam

### Minor Components

Calemore and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils have less than 35 percent clay content in the profile.

Baca and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, terraces

*Position on landform:* Talf, tread

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils do not have a thick dark surface layer

### Major Uses

Irrigated cropland, rangeland, wildlife habitat

### Major Management Limitations

Some areas may have a sandy substratum below a depth of 40 inches. These sandy lenses may carry water that will contribute to wet areas downslope.

## Rd—Romound silt loam, 1 to 5 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 135 to 155 days

*Note:* Located in the northeastern part of the county near Ninaview and highway 109.

### **Map Unit Composition**

Romound and similar soils: 85 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Romound soils**

*Landscape:* Plains

*Landform:* Structural benches, pediments

*Position on landform:* Rise

*Parent material:* Eolian deposits over residuum weathered from shale and gypsum

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 1.9 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 55 percent

*Salinity maximum:* About 16 mmhos/cm (moderately saline)

*Sodium adsorption ratio maximum:* About 13 (moderately sodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, little bluestem, needleandthread, sand dropseed, sideoats grama, western wheatgrass, fourwing saltbush, sand sagebrush, sun sedge, American vetch, spreading buckwheat

*Land capability subclass (nonirrigated):* 6s

#### *Typical Profile:*

A—0 to 4 inches; silt loam

Bw—4 to 14 inches; loam

Cy1—14 to 24 inches; loam

Cy2—24 to 30 inches; loam

Cr—30 to 60 inches; bedrock

### **Minor Components**

Ovmesa and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands, plains

*Landform:* Hills, pediments, structural benches

*Position on landform:* Crest, head slope, Rise

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth to restrictive feature:* 8 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Gypsum Breaks

*Distinguishing characteristics:* These soils are less than 20 inches deep to gypsum and shale bedrock.

Shingle and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Side slope, head slope, rise

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Shaly Plains

*Distinguishing characteristics:* These soils are less than 20 inches deep to shale bedrock.

### Major Uses

Rangeland, wildlife habitat

### Major Management Limitations

These soils are significantly affected by high gypsum content. Surface vegetation is often sparse. Underground pipelines, septic systems, and building foundations can be affected by subsistence and corrosion.

## RF—Rock outcrop-Rubble land complex, 45 to 90 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 48A

*Elevation:* 8,000 to 13,250 feet (2,438 to 4,038 meters)

*Mean annual precipitation:* 20 to 40 inches (508 to 1,016 millimeters)

*Mean annual air temperature:* 34 to 41 degrees F. (1.0 to 5.0 degrees C.)

*Frost-free period:* 10 to 50 days

*Note:* Located above timber line in the Sangre de Cristo mountains and Spanish Peaks.

### Map Unit Composition

Rock outcrop: 50 percent

Rubble land: 50 percent

Minor components:

### Component Descriptions

#### Rock outcrop

*Description:* Rock outcrop consists of areas of exposed monzonite and diorite.

*Landscape:* Mountains

*Landform:* Mountain slopes

*Parent material:* Igneous rock

*Slope:* 45 to 90 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

### **Rubble land**

*Description:* Rubble land consists of areas of talus on the surface.

*Landscape:* Mountains

*Landform:* Talus slopes

*Parent material:* Colluvium derived from monzonite, diorite, or basalt

*Slope:* 45 to 90 percent

*Aspect:* All aspects

*Surface fragments:* About 48 percent subangular cobbles, about 48 percent subangular stones

*Available water capacity:* About 3.0 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Land capability subclass (nonirrigated):* 8s

## **Rt—Raton cobbly loam, 3 to 20 percent slopes, very stony**

### **Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,000 to 9,000 feet (2,438 to 2,743 meters)

*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)

*Mean annual air temperature:* 43 to 44 degrees F. (6.0 to 6.7 degrees C.)

*Frost-free period:* 80 to 100 days

*Note:* Located on Little Fishers Peak and Barela mesas along the New Mexico state line.

### **Map Unit Composition**

Raton and similar soils: 90 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Raton soils**

*Landscape:* Lava plateaus

*Landform:* Scarps, ridges

*Position on landform:* Head slope, crest

*Parent material:* Colluvium and residuum weathered from basalt

*Slope:* 3 to 20 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 4 percent subangular cobbles, about 5 percent subrounded stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 1.7 inches (very low)

*Shrink-swell potential:* About 2.7 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Loam

*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, western wheatgrass, Gambel's oak, pine dropseed, Sandberg bluegrass, true mountain mahogany, nodding brome, fringed sagewort, muttongrass, prairie junegrass

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A1—0 to 6 inches; cobbly loam

A2—6 to 9 inches; very cobbly clay loam

Bt—9 to 17 inches; very stony clay

R—17 to 60 inches; bedrock

### **Minor Components**

Barela and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Position on landform:* Rise

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Loamy Park

*Distinguishing characteristics:* These soils are 40 to 60 inches deep to basalt bedrock.

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Slope:* 5 to 20 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed basalt.

### **Major Uses**

Rangeland, recreation, wildlife habitat

## **RyC—Ryegate sandy loam, 1 to 8 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located east of Kim to the Baca County line.

### Map Unit Composition

Ryegate and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Ryegate soils

*Landscape:* Plains

*Landform:* Plains, hills, ridges, fans

*Position on landform:* Side slope, Rise

*Parent material:* Eolian deposits over residuum weathered from sandstone

*Slope:* 1 to 8 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 4.9 inches (low)

*Shrink-swell potential:* About 2.1 percent (low)

*Calcium carbonate maximum:* About 25 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy (formerly Sandy Plains)

*Potential native vegetation:* blue grama, prairie sandreed, needleandthread, sand bluestem, little bluestem, switchgrass, western wheatgrass, sideoats grama, sun sedge, western sandcherry, American vetch, sand dropseed, sand sagebrush, spreading buckwheat, dotted gayfeather

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

#### Typical Profile:

A—0 to 10 inches; sandy loam

Bt—10 to 21 inches; sandy clay loam

BCt—21 to 30 inches; sandy clay loam

BC—30 to 32 inches; sandy clay loam

2Bk—32 to 34 inches; gravelly loam

R—34 to 60 inches; bedrock

### Minor Components

Ascalon and similar soils

*Composition:* About 8 percent

*Landscape:* Plains

*Landform:* Plains, hills, ridges

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils are greater than 60 inches deep to bedrock.



**Daleroose and similar soils***Composition:* About 2 percent*Landscape:* Plains*Landform:* Scarps*Position on landform:* Crest*Slope:* 2 to 4 percent*Aspect:* All aspects*Shape (down/across):* Convex/convex*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic*Drainage class:* Well drained*Ecological site:* Sandstone Breaks*Distinguishing characteristics:* These soils are less than 20 inches deep to sandstone bedrock.**Major Uses**

Nonirrigated cropland, rangeland, wildlife habitat

**RzD—Rizozo-Rock outcrop complex, moist, 3 to 20 percent slopes****Map Unit Setting***Major Land Resource Area:* 70*Elevation:* 4,500 to 5,500 feet (1,372 to 1,676 meters)*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)*Frost-free period:* 130 to 155 days*Note:* Located in the Dry Cimarron drainage in the southeastern part of the county.**Map Unit Composition**

Rizozo, moist and similar soils: 75 percent

Rock outcrop: 15 percent

Minor components: 10 percent

**Component Descriptions****Rizozo, moist soils***Landscape:* Canyonlands*Landform:* Scarps, mesas*Position on landform:* Crest*Parent material:* Slope alluvium and residuum weathered from sandstone and siltstone*Slope:* 3 to 20 percent*Aspect:* All aspects*Shape (down/across):* Linear/convex*Surface fragments:* About 30 percent subangular gravel*Depth class:* Very shallow and shallow*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic*Drainage class:* Well drained*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)*Available water capacity:* About 1.3 inches (very low)*Shrink-swell potential:* About 1.5 percent (low)*Calcium carbonate maximum:* About 15 percent*Gypsum maximum:* None



Figure 10.—A typical landscape of Rizozo-Rock outcrop complex, moist, 3 to 20 percent slopes.

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandstone Breaks

*Potential native vegetation:* little bluestem, prairie sandreed, sideoats grama, blue grama, sand bluestem, needleandthread, big bluestem, chokecherry, golden currant, prairie junegrass, purple prairieclover, western wheatgrass, spreading buckwheat

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A—0 to 4 inches; gravelly fine sandy loam

C—4 to 11 inches; gravelly very fine sandy loam

R—11 to 60 inches; bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed red sandstone.

*Landscape:* Canyonlands

*Landform:* Scarps

*Parent material:* Sandstone

*Slope:* 10 to 20 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Acantilado and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands

*Landform:* Fans  
*Slope:* 3 to 7 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

#### Major Uses

Rangeland, wildlife habitat

### Sc—Schwacheim gravelly silt loam, 3 to 20 percent slopes, very stony

#### Map Unit Setting

*Major Land Resource Area:* 48A  
*Elevation:* 8,600 to 10,000 feet (2,621 to 3,048 meters)  
*Mean annual precipitation:* 22 to 26 inches (559 to 660 millimeters)  
*Mean annual air temperature:* 38 to 42 degrees F. (3.3 to 5.6 degrees C.)  
*Frost-free period:* 60 to 75 days  
*Note:* Located south of Trinidad on the Fishers Peak Mesa.

#### Map Unit Composition

Schwacheim and similar soils: 90 percent  
 Minor components: 10 percent

#### Component Descriptions

##### Schwacheim soils

*Landscape:* Lava plateaus  
*Landform:* Basalt capped mesas, lava plateaus  
*Parent material:* Slope alluvium and residuum weathered from basalt  
*Slope:* 3 to 20 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/linear  
*Surface fragments:* About 15 percent subangular medium and coarse gravel, about 3 percent subangular cobbles, about 3 percent subangular stones  
*Depth class:* Shallow  
*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)  
*Available water capacity:* About 1.3 inches (very low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Calcium carbonate maximum:* None  
*Gypsum maximum:* None  
*Salinity maximum:* About 0 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Shallow Subalpine  
*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, Thurber's fescue, Columbia needlegrass, Letterman's needlegrass, muttongrass, gooseberry currant, mountain brome, slender wheatgrass, western wheatgrass, fringed sagewort, pussytoes  
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

- A1—0 to 5 inches; gravelly silt loam
- A2—5 to 9 inches; very gravelly silt loam
- Bw—9 to 14 inches; extremely gravelly silt loam
- R—14 to 18 inches; bedrock

**Minor Components**

Embargo and similar soils

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus, swales

*Position on landform:* Dip

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Subalpine Loam

*Distinguishing characteristics:* These soils are 20 to 40 inches to basalt bedrock.

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Slope:* 10 to 20 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed basalt.

**Major Uses**

Rangeland, recreation, wildlife habitat

## **ScR—Schwacheim-Rock outcrop complex, 5 to 30 percent slopes, extremely stony**

**Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,300 to 10,000 feet (2,530 to 3,048 meters)

*Mean annual precipitation:* 22 to 26 inches (559 to 660 millimeters)

*Mean annual air temperature:* 37 to 43 degrees F. (3.0 to 6.0 degrees C.)

*Frost-free period:* 60 to 75 days

*Note:* Located south of Trinidad on the Fishers Peak Mesa.

**Map Unit Composition**

Schwacheim and similar soils: 70 percent

Rock outcrop: 20 percent

Minor components: 10 percent

**Component Descriptions****Schwacheim soils**

*Landscape:* Lava plateaus

*Landform:* Basalt capped mesas, lava plateaus

*Parent material:* Slope alluvium and residuum weathered from basalt

*Slope:* 5 to 30 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 15 percent subangular gravel, about 3 percent subangular cobbles, about 3 percent subangular stones

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.3 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shallow Subalpine

*Potential native vegetation:* Arizona fescue, mountain muhly, Parry's danthonia, Thurber's fescue, Columbia needlegrass, Letterman's needlegrass, muttongrass, gooseberry currant, mountain brome, slender wheatgrass, western wheatgrass, fringed sagewort, pussytoes

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A1—0 to 5 inches; gravelly silt loam

A2—5 to 9 inches; very gravelly silt loam

Bw—9 to 14 inches; extremely gravelly silt loam

R—14 to 18 inches; bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed basalt.

*Landscape:* Lava plateaus

*Landform:* Scarps

*Parent material:* Basalt

*Slope:* 5 to 30 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Embargo and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus, swales

*Position on landform:* Rise

*Slope:* 5 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Subalpine Loam

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to basalt bedrock.



### Major Uses

Rangeland, recreation, wildlife habitat

## SG—Ovmesa-Romound complex, 2 to 30 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 135 to 155 days

*Note:* Located in the northeast part of the county in the Pinon Canyon area.

### Map Unit Composition

Ovmesa and similar soils: 50 percent

Romound and similar soils: 35 percent

Minor components: 15 percent

### Component Descriptions

#### Ovmesa soils

*Landscape:* Plains, canyonlands

*Landform:* Hills, structural benches, pediments

*Position on landform:* Side slope, head slope, rise, crest

*Parent material:* Slope alluvium over residuum weathered from gypsum and shale



Figure 11.—In the foreground, a typical landscape of Ovmesa-Romound complex, 2 to 30 percent slopes.

*Slope:* 9 to 30 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 8 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.4 inches (very low)

*Shrink-swell potential:* About 0.8 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 55 percent

*Salinity maximum:* About 16 mmhos/cm (moderately saline)

*Sodium adsorption ratio maximum:* About 10 (slightly sodic)

*Ecological site:* Gypsum Breaks

*Potential native vegetation:* black grama, blue grama, New Mexico feathergrass, Bigelow's sagebrush, galleta, sideoats grama, gyp dropseed, little bluestem, fourwing saltbush, winterfat, dotted gayfeather

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 2 inches; loam

Bky—2 to 9 inches; fine sandy loam

Cr1—9 to 14 inches; bedrock

Cr2—14 to 40 inches; bedrock

**Romound soils**

*Landscape:* Canyonlands, plains

*Landform:* Structural benches, pediments

*Position on landform:* Rise

*Parent material:* Slope alluvium over residuum weathered from gypsum and shale

*Slope:* 2 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 1.9 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 55 percent

*Salinity maximum:* About 16 mmhos/cm (moderately saline)

*Sodium adsorption ratio maximum:* About 13 (moderately sodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, little bluestem, needleandthread, sand dropseed, sideoats grama, western wheatgrass, fourwing saltbush, sand sagebrush, sun sedge, American vetch, spreading buckwheat

*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

A—0 to 4 inches; silt loam

Bw—4 to 14 inches; loam

Cy1—14 to 24 inches; loam



Cy2—24 to 30 inches; loam  
 Cr—30 to 60 inches; bedrock

### Minor Components

Rizozo and similar soils

*Composition:* About 10 percent  
*Landscape:* Canyonlands  
*Landform:* Scarps  
*Slope:* 3 to 20 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/linear  
*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Ecological site:* Sandstone Breaks  
*Distinguishing characteristics:* These soils are less than 20 inches deep to red sandstone and are not affected by gypsum.

Yattle and similar soils

*Composition:* About 5 percent  
*Landscape:* Canyonlands  
*Landform:* Fans  
*Position on landform:* Rise  
*Slope:* 2 to 6 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Sandy  
*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock and do not have gypsum accumulations.

### Major Uses

Rangeland, wildlife habitat

### Major Management Limitations

These soils are significantly affected by high gypsum content. Surface vegetation is often sparse. Underground pipelines, septic systems, and building foundations can be affected by subsistence and corrosion.

## ShD—Shingle-Penrose complex, 2 to 15 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69  
*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)  
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
*Frost-free period:* 130 to 155 days  
*Note:* Located in shaly areas north and east of Trinidad throughout the plains. Many areas have deep gullies.

### Map Unit Composition

Shingle and similar soils: 65 percent  
 Penrose and similar soils: 23 percent  
 Minor components: 12 percent

### Component Descriptions

#### Shingle soils

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Head slope, rise, side slope

*Parent material:* Slope alluvium over residuum weathered from gypsiferous shale

*Slope:* 2 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.9 inches (very low)

*Shrink-swell potential:* About 2.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 4 (slightly sodic)

*Ecological site:* Shaly Plains

*Potential native vegetation:* western wheatgrass, fourwing saltbush, Indian ricegrass, needleandthread, winterfat, pale wolfberry

*Land capability subclass (nonirrigated):* 7s

#### *Typical Profile:*

A—0 to 4 inches; clay loam

C—4 to 11 inches; clay loam

Cr—11 to 60 inches; bedrock

#### Penrose soils

*Landscape:* Plains

*Landform:* Scarps

*Position on landform:* Crest

*Parent material:* Slope alluvium over residuum weathered from limestone

*Slope:* 2 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 10 percent angular channers

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 1.7 percent (low)

*Calcium carbonate maximum:* About 75 percent

*Gypsum maximum:* About 1 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Limestone Breaks

*Potential native vegetation:* true mountain mahogany, little bluestem, needlegrass, sideoats grama, bluegrass, fringed sagewort, juniper, prairie junegrass, twoneedle pinyon

*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

- A—0 to 5 inches; loam
- AC—5 to 9 inches; loam
- C—9 to 15 inches; channery loam
- R—15 to 26 inches; bedrock

**Minor Components**

## Midway, moist and similar soils

- Composition:* About 5 percent
- Landscape:* Plains
- Landform:* Hills, pediments
- Position on landform:* Head slope, side slope, rise
- Slope:* 5 to 15 percent
- Aspect:* All aspects
- Shape (down/across):* Linear/convex
- Depth to restrictive feature:* 6 to 20 inches to bedrock, paralithic
- Drainage class:* Well drained
- Ecological site:* Shaly Plains
- Distinguishing characteristics:* These soils are similar to Shingle soils but have more than 35 percent clay content in the profile.

## Minnequa and similar soils

- Composition:* About 5 percent
- Landscape:* Plains
- Landform:* Pediments, plains
- Position on landform:* Rise
- Slope:* 1 to 5 percent
- Aspect:* All aspects
- Shape (down/across):* Linear/linear
- Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic
- Drainage class:* Well drained
- Ecological site:* Loamy
- Distinguishing characteristics:* These soils are 20 to 40 inches to soft shale and limestone bedrock.

## Rock outcrop

- Composition:* About 2 percent
- Landscape:* Plains
- Landform:* Scarps
- Slope:* 2 to 15 percent
- Aspect:* All aspects
- Depth to restrictive feature:* 0 inches to bedrock, lithic
- Distinguishing characteristics:* Rock outcrop consists of areas of exposed limestone.

**Major Uses**

Rangeland, wildlife habitat

## **SL—Standard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony**

### **Map Unit Setting**

*Major Land Resource Area:* 48A

*Elevation:* 8,000 to 9,800 feet (2,439 to 2,987 meters)

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)

*Frost-free period:* 40 to 80 days

*Note:* Located on mountain slopes of the Sangre de Cristo mountains and Spanish Peaks.

### **Map Unit Composition**

Standard and similar soils: 45 percent

Leadville and similar soils: 30 percent

Rock outcrop: 15 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Standard soils**

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium and residuum weathered from sandstone

*Slope:* 35 to 60 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Surface fragments:* About 5 percent subrounded stones, about 10 percent subangular cobbles

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 2.3 inches (very low)

*Shrink-swell potential:* About 1.4 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 90 mmhos/cm (strongly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-

Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Potential native vegetation:*

Common trees: white fir, Rocky Mountain Douglas fir

Other plants: mountain muhly, Arizona fescue, mountain brome, Parry's danthonia, common juniper, fringed sagewort, Gambel's oak, kinnikinnick, Oregongrape

*Land capability subclass (nonirrigated): 7s*

*Typical Profile:*

Oi—0 to 1 inch; slightly decomposed plant material  
 A—1 inch to 7 inches; cobbly sandy loam  
 E—7 to 11 inches; very gravelly sandy loam  
 Bt1—11 to 18 inches; very gravelly sandy clay loam  
 Bt2—18 to 25 inches; very gravelly sandy clay loam  
 Cr—25 to 27 inches; bedrock  
 R—27 to 60 inches; bedrock

**Leadville soils**

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountainflank

*Parent material:* Colluvium derived from sandstone

*Slope:* 35 to 50 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Surface fragments:* About 2 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 5.2 inches (low)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pseudotsuga menziesii-Abies concolor/Quercus gambelii-

Symphoricarpos albus/Festuca arizonica-Carex geyeri

*Potential native vegetation:*

Common trees: white fir, Engelmann's spruce, Rocky Mountain Douglas fir

Other plants: Arizona fescue, common juniper, elk sedge, mountain brome, bluegrass, boxleaf myrtle, grouse whortleberry, kinnikinnick, muttongrass, russet buffaloberry, Woods' rose

*Land capability subclass (nonirrigated): 7e*

*Typical Profile:*

Oi—0 to 2 inches; slightly decomposed plant material  
 E—2 to 16 inches; cobbly sandy loam  
 B/E—16 to 22 inches; very cobbly sandy loam  
 Bt—22 to 48 inches; very cobbly sandy clay loam  
 BCt—48 to 65 inches; very cobbly sandy clay loam

**Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed Sangre de Cristo sandstone.

*Landscape:* Mountains

*Landform:* Mountain slopes

*Parent material:* Sandstone

*Slope:* 35 to 60 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated): 8s*

**Minor Components**

Nopurg and similar soils

*Composition:* About 10 percent

*Landscape:* Mountains

*Landform:* Mountain slopes

*Position on landform:* Mountain flank

*Slope:* 35 to 50 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* *Pseudotsuga menziesii*-*Abies concolor*/*Quercus gambelii*-

*Symphoricarpos albus*/*Festuca arizonica*-*Carex geyeri*

*Distinguishing characteristics:* These soils average more than 35 percent clay content.

**Major Uses**

Woodland, recreation, wildlife habitat

**SM—Schamber-Midway complex, 3 to 25 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 5,500 to 6,500 feet (1,676 to 1,981 meters)

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located northeast of Aguilar along the Huerfano County line. This map unit is one delineation used to join Huerfano County.

**Map Unit Composition**

Schamber and similar soils: 65 percent

Midway and similar soils: 25 percent

Minor components: 10 percent

**Component Descriptions****Schamber soils**

*Landscape:* Plains

*Landform:* Fan remnants

*Position on landform:* Rise

*Parent material:* Sandy and gravelly alluvium

*Slope:* 3 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 5 percent subangular cobbles, about 25 percent subangular gravel

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 2.3 inches (very low)

*Shrink-swell potential:* About 0.2 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Gravel Breaks

*Potential native vegetation:* sideoats grama, little bluestem, blue grama, big bluestem, galleta, needleandthread, fourwing saltbush, hairy grama, western wheatgrass, purple prairieclover, yucca

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 4 inches; gravelly sandy loam

AC—4 to 12 inches; very gravelly sandy loam

Bk—12 to 60 inches; extremely gravelly loamy sand

**Midway soils**

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Head slope, rise, side slope

*Parent material:* Residuum weathered from shale slope alluvium

*Slope:* 3 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.4 inches (very low)

*Shrink-swell potential:* About 7.5 percent (high)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 15 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 15 (moderately sodic)

*Ecological site:* Shaly Plains

*Potential native vegetation:* alkali sacaton, western wheatgrass, blue grama, sideoats grama, fourwing saltbush, green needlegrass, winterfat, little bluestem, American vetch

*Land capability subclass (irrigated):* 6e

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 3 inches; clay loam

AC—3 to 8 inches; silty clay

C—8 to 14 inches; silty clay

Cr—14 to 24 inches; bedrock

**Minor Components**

Razor and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Rise, side slope, head slope

*Slope:* 3 to 12 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic



*Drainage class:* Well drained

*Ecological site:* Clayey

*Distinguishing characteristics:* These soils are 20 to 40 inches to shale bedrock.

### Major Uses

Rangeland, wildlife habitat, source of sand and gravel

## Sn—Sitcan fine sandy loam, 1 to 4 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 5,200 feet (1,372 to 1,585 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 51 to 53 degrees F. (10.5 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the northeast part of the county north of Kim, Villegreen, and Andrix.

### Map Unit Composition

Sitcan and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Sitcan soils

*Landscape:* Canyonlands

*Landform:* Fans, terraces

*Position on landform:* Tread, rise

*Parent material:* Fine-loamy alluvium derived from sandstone

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.3 inches (high)

*Shrink-swell potential:* About 2.2 percent (low)

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* About 1 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, needleandthread, fourwing saltbush, galleta, little bluestem, sand dropseed, western wheatgrass, spreading buckwheat, sand sagebrush

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

#### Typical Profile:

A—0 to 10 inches; fine sandy loam

AB—10 to 15 inches; loam

Bt1—15 to 28 inches; clay loam

Bt2—28 to 33 inches; clay loam

Bk1—33 to 40 inches; sandy clay loam

Bk2—40 to 70 inches; loam

### Minor Components

#### Fort and similar soils

*Composition:* About 5 percent

*Landscape:* Canyonlands

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 2 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils do not have a thick dark surface layer.

#### Mauricanyon and similar soils

*Composition:* About 5 percent

*Landscape:* Canyonlands

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 1 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have dark soil horizons at least 40 inches thick and less sand.

### Major Uses

Rangeland, wildlife habitat

## SR—Saruche-Rombo-Rock outcrop complex, 25 to 50 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 49

*Elevation:* 7,000 to 8,500 feet (2,134 to 2,591 meters)

*Mean annual precipitation:* 16 to 22 inches (406 to 559 millimeters)

*Mean annual air temperature:* 42 to 46 degrees F. (5.6 to 8.0 degrees C.)

*Frost-free period:* 70 to 100 days

*Note:* Located in the foothills. These soils are on very steep slopes with southerly aspects.

### Map Unit Composition

Saruche and similar soils: 40 percent

Rombo and similar soils: 35 percent

Rock outcrop: 15 percent

Minor components: 10 percent

### Component Descriptions

#### Saruche soils

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope, head slope

*Parent material:* Slope alluvium and residuum weathered from shale

*Slope:* 25 to 50 percent

*Aspect:* East to west

*Shape (down/across):* Convex/convex

*Surface fragments:* About 20 percent subangular gravel, about 8 percent subangular cobbles, about 2 percent subrounded stones

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 8 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 2.6 inches (very low)

*Shrink-swell potential:* About 5.5 percent (moderate)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Shrubby Foothill

*Potential native vegetation:* sideoats grama, western wheatgrass, Gambel's oak, little bluestem, needleandthread, big bluestem, Griffith wheatgrass, mountain mahogany, twoneedle pinyon, Rocky Mountain juniper

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

A—0 to 4 inches; channery silty clay loam

Bw—4 to 16 inches; parachannery silty clay loam

Cr1—16 to 20 inches; bedrock

Cr2—20 to 30 inches; bedrock

**Rombo soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Side slope, base slope

*Parent material:* Slope alluvium and residuum weathered from shale and siltstone

*Slope:* 25 to 50 percent

*Aspect:* East to west

*Shape (down/across):* Convex/convex

*Surface fragments:* About 30 percent subangular gravel

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 5.4 inches (low)

*Shrink-swell potential:* About 7.0 percent (high)

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* None

*Salinity maximum:* About 1 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Shrubby Foothill

*Potential native vegetation:* mountain muhly, mountain mahogany, Gambel's oak, western wheatgrass, sideoats grama, big bluestem, Griffith wheatgrass, little bluestem, blue grama, skunkbush sumac, American vetch, purple prairieclover, Rocky Mountain juniper, twoneedle pinyon

*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

- A—0 to 4 inches; channery silty clay loam
- Bw—4 to 22 inches; channery silty clay loam
- Bk—22 to 34 inches; parachannery silty clay loam
- Cr—34 to 44 inches; bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed sandstone and siltstone.

*Landscape:* Foothills

*Landform:* Scarps

*Parent material:* Sandstone

*Slope:* 35 to 50 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Bandarito and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fan remnants, valley sides

*Position on landform:* Rise

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Well drained

*Ecological site:* Clayey Foothill

*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

Stout and similar soils

*Composition:* About 3 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, interfluve

*Slope:* 25 to 30 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Somewhat excessively drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are less than 20 inches deep to sandstone bedrock.

Dargol and similar soils

*Composition:* About 2 percent

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, side slope

*Slope:* 25 to 50 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are similar to Rombo soils, but have a well-developed subsoil.

### Major Uses

Livestock grazing, wildlife habitat

## Sw—Molinaro loam, 2 to 12 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 49

*Elevation:* 6,800 to 8,000 feet (2,073 to 2,438 meters)

*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)

*Mean annual air temperature:* 45 to 47 degrees F. (7.0 to 8.4 degrees C.)

*Frost-free period:* 70 to 100 days

*Note:* Located along drainageways in the foothills near Primaro, Weston, Gulnare, and Bon Carbo.

### Map Unit Composition

Molinaro and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Molinaro soils

*Landscape:* Foothills

*Landform:* Fan remnants, terraces, valley floors

*Position on landform:* Rise, tread

*Parent material:* Alluvium derived from sandstone and shale

*Slope:* 2 to 12 percent

*Aspect:* Northwest to southwest

*Shape (down/across):* Linear/convex

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 9.1 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 5 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy Foothill

*Potential native vegetation:* western wheatgrass, blue grama, green needlegrass, mountain muhly, sun sedge, needleandthread, fringed sagewort, prairie junegrass

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

#### Typical Profile:

A1—0 to 17 inches; loam

A2—17 to 31 inches; loam

Bw—31 to 41 inches; clay loam

Bk—41 to 66 inches; loam

### Minor Components

Trujillo and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils have a well-developed subsoil and a dark surface layer less than 16 inches thick.

Bandarito and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fan remnants, valley sides

*Position on landform:* Rise

*Slope:* 2 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Well drained

*Ecological site:* Clayey Foothill

*Distinguishing characteristics:* These soils have more than 35 percent clay content and less sand.

### Major Uses

Rangeland, hay and pasture, wildlife habitat

## TbA—Trementina silt loam, 0 to 2 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67, 70

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located along major drainageways in the eastern part of the county from Trinchera to Kim.

### Map Unit Composition

Trementina, warm and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Trementina, warm soils

*Landscape:* Canyonlands, plains

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Silty alluvium derived from sandstone and shale

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 10.2 inches (high)

*Shrink-swell potential:* About 2.5 percent (low)

*Flooding hazard:* Rare

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, sand dropseed, winterfat, American vetch, buffalograss, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2s

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A1—0 to 8 inches; silt loam

A2—8 to 14 inches; silt loam

Bw—14 to 21 inches; silty clay loam

Bk—21 to 29 inches; silty clay loam

Ab—29 to 39 inches; silty clay loam

Bwb—39 to 50 inches; silty clay loam

Bkw—50 to 72 inches; silty clay loam

### **Minor Components**

Mauricanyon and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands, plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less than 50 percent silt and more sand.

### **Major Uses**

Cropland, rangeland, wildlife habitat

## **TeE—Tecolote very cobbly sandy loam, 5 to 15 percent slopes, very stony**

### **Map Unit Setting**

*Major Land Resource Area:* 49



*Elevation:* 7,000 to 8,200 feet (2,134 to 2,499 meters)

*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)

*Mean annual air temperature:* 42 to 44 degrees F. (5.8 to 6.8 degrees C.)

*Frost-free period:* 70 to 100 days

*Note:* Located in the foothills near Stonewall, and the north fork of the Purgatoire River.

### Map Unit Composition

Tecolote and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Tecolote soils

*Landscape:* Foothills

*Landform:* Fan remnants

*Position on landform:* Rise

*Parent material:* Colluvium and alluvium derived from sandstone

*Slope:* 5 to 15 percent

*Aspect:* North to south

*Shape (down/across):* Linear/linear

*Surface fragments:* About 10 percent subrounded gravel, about 10 percent subrounded cobbles, about 5 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 4.6 inches (low)

*Shrink-swell potential:* About 1.8 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Potential native vegetation:*

Common trees: ponderosa pine

Other plants: mountain muhly, Arizona fescue, Parry's danthonia, bluegrass, common juniper, elk sedge, Gambel's oak, kinnikinnick, pine dropseed, prairie junegrass, and fringed sagewort

*Land capability subclass (nonirrigated):* 7s

#### Typical Profile:

Oi—0 to 1 inch; slightly decomposed plant material

A—1 inch to 5 inches; very cobbly sandy loam

E—5 to 15 inches; very cobbly sandy loam

B/E—15 to 25 inches; very cobbly sandy loam

Bt—25 to 60 inches; very cobbly sandy clay loam

#### Minor Components

Littlepine and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fan remnants

*Position on landform:* Rise

*Slope:* 5 to 15 percent

*Aspect:* North to southwest

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa/Festuca arizonica-Danthonia parryi

*Distinguishing characteristics:* These soils have less than 35 percent total rock fragments.

Trujillo and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 5 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Sandy Foothill

*Distinguishing characteristics:* These soils have less than 35 percent total rock fragments.

### Major Uses

Woodland, livestock grazing, wildlife habitat

## TF—Torreon-Fuera complex, 9 to 30 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 6,500 to 7,500 feet (1,982 to 2,286 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 43 to 53 degrees F. (6.0 to 11.5 degrees C.)

*Frost-free period:* 80 to 140 days

*Note:* located on fans at the base of Horseshoe and Barela Mesas in the south-central part of the county.

### Map Unit Composition

Torreon, stony and similar soils: 50 percent

Fuera and similar soils: 35 percent

Minor components: 15 percent

### Component Descriptions

#### Torreon, stony soils

*Landscape:* Foothills

*Landform:* Fan remnants

*Position on landform:* Tread

*Parent material:* Alluvium derived from basalt and sedimentary rock

*Slope:* 9 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 20 percent subrounded cobbles, about 2 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 9.2 inches (high)  
*Shrink-swell potential:* About 6.0 percent (moderate)  
*Calcium carbonate maximum:* About 24 percent  
*Gypsum maximum:* None  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Clayey Foothill  
*Potential native vegetation:* western wheatgrass, bluegrass, green needlegrass, Sandberg bluegrass, fourwing saltbush, Indian ricegrass, winterfat, American vetch, purple prairieclover  
*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 7 inches; stony clay loam  
 BA—7 to 11 inches; clay loam  
 Bt—11 to 29 inches; clay  
 Btk—29 to 37 inches; clay  
 Bk—37 to 60 inches; cobbly clay loam

**Fuera soils**

*Landscape:* Foothills  
*Landform:* Fan remnants  
*Position on landform:* Riser  
*Parent material:* Alluvium and colluvium derived from basalt and shale  
*Slope:* 15 to 30 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/convex  
*Surface fragments:* About 2 percent subrounded stones, about 5 percent subrounded cobbles  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Slowest permeability:* .06 to 0.2 in/hr (slow)  
*Available water capacity:* About 7.3 inches (moderate)  
*Shrink-swell potential:* About 3.8 percent (moderate)  
*Calcium carbonate maximum:* None  
*Gypsum maximum:* None  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii  
*Potential native vegetation:*  
     Common trees: ponderosa pine, Rocky Mountain Douglas fir  
     Other plants: Arizona fescue, mountain muhly, muttongrass, pine dropseed, elk sedge, Gambel's oak, mountain mahogany, nodding brome, prairie junegrass, whortleleaf snowberry  
*Land capability subclass (nonirrigated):* 7e

*Typical Profile:*

Oi—0 to 2 inches; slightly decomposed plant material  
 E—2 to 7 inches; cobbly loam  
 E and Bt—7 to 10 inches; cobbly loam  
 E and Bt—10 to 11 inches; cobbly clay loam  
 Bt1—11 to 27 inches; cobbly clay  
 Bt2—27 to 47 inches; cobbly clay  
 C—47 to 60 inches; cobbly clay

**Minor Components**

## Capulin and similar soils

*Composition:* About 10 percent*Landscape:* Foothills*Landform:* Fans*Position on landform:* Rise*Slope:* 9 to 15 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Basalt Loam*Distinguishing characteristics:* These soils have less than 35 percent clay content.

## Lorencito and similar soils

*Composition:* About 5 percent*Landscape:* Foothills*Landform:* Fan remnants*Slope:* 15 to 30 percent*Aspect:* All aspects*Shape (down/across):* Linear/convex*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic*Drainage class:* Well drained*Ecological site:* Pinus edulis-Juniperus monosperma/Quercus gambelii/Bouteloua  
curtipendula-Poa fernaldiana*Distinguishing characteristics:* These soils are less than 20 inches deep to shale  
bedrock.**Major Uses**

Rangeland, wildlife habitat

**TgD—Trujillo sandy loam, 3 to 9 percent slopes****Map Unit Setting***Major Land Resource Area:* 49*Elevation:* 6,800 to 8,000 feet (2,073 to 2,438 meters)*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)*Frost-free period:* 70 to 100 days*Note:* Located in the foothills near Gulnare, Weston, and Stonewall.**Map Unit Composition**

Trujillo and similar soils: 90 percent

Minor components: 10 percent

**Component Descriptions****Trujillo soils***Landscape:* Foothills*Landform:* Fans, drainageways*Position on landform:* Rise*Parent material:* Sandy alluvium derived from coarse sandstone

*Slope:* 3 to 9 percent

*Aspect:* Northwest to south

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 7.9 inches (moderate)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* About 2 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Sandy Foothill

*Potential native vegetation:* big bluestem, blue grama, prairie sandreed, western wheatgrass, needleandthread, bluegrass, little bluestem, mountain muhly, sideoats grama, prairie junegrass, sun sedge, fringed sagewort, purple prairieclover

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 5 inches; sandy loam

BA—5 to 8 inches; loam

Bt1—8 to 19 inches; sandy clay loam

Bt2—19 to 26 inches; sandy clay loam

Bt3—26 to 35 inches; sandy clay loam

BC—35 to 60 inches; sandy loam

Bk—60 to 65 inches; sandy clay loam

### Minor Components

Molinaro and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fan remnants, terraces, valley floors

*Position on landform:* Tread, Rise

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils have less sand and do not have a developed subsoil.

### Major Uses

Rangeland, irrigated hay and pasture, and wildlife habitat

## TgE—Trujillo sandy loam, 9 to 25 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 49

*Elevation:* 7,000 to 8,000 feet (2,134 to 2,438 meters)

*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)

*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)

*Frost-free period:* 70 to 100 days

*Note:* Located in the foothills near Gulnare, Weston, and Stonewall.

### **Map Unit Composition**

Trujillo and similar soils: 90 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Trujillo soils**

*Landscape:* Foothills

*Landform:* Drainageways, fans

*Position on landform:* Rise

*Parent material:* Sandy alluvium derived from coarse sandstone

*Slope:* 9 to 25 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/concave

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 7.9 inches (moderate)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* About 2 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Sandy Foothill

*Potential native vegetation:* big bluestem, blue grama, prairie sandreed, western wheatgrass, needleandthread, bluegrass, little bluestem, mountain muhly, sideoats grama, prairie junegrass, sun sedge, fringed sagewort, purple prairieclover

*Land capability subclass (nonirrigated):* 6e

#### *Typical Profile:*

A—0 to 5 inches; sandy loam

BA—5 to 8 inches; loam

Bt1—8 to 19 inches; sandy clay loam

Bt2—19 to 26 inches; sandy clay loam

Bt3—26 to 35 inches; sandy clay loam

BC—35 to 60 inches; sandy loam

Bk—60 to 65 inches; sandy clay loam

#### **Minor Components**

Molinaro and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fan remnants, terraces, valley floors

*Position on landform:* Rise, tread

*Slope:* 9 to 12 percent

*Aspect:* North

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils have less sand and do not have a developed subsoil.

### Major Uses

Rangeland, wildlife habitat

## TL—Torreon-Lorencito complex, 8 to 35 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 6,000 to 7,500 feet (1,829 to 2,286 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 46 to 53 degrees F. (8.0 to 11.5 degrees C.)

*Frost-free period:* 120 to 140 days

*Note:* Located on fans at the base of Horseshoe and Barela Mesas in the south-central part of the county.

### Map Unit Composition

Torreon, stony and similar soils: 55 percent

Lorencito and similar soils: 35 percent

Minor components: 10 percent

### Component Descriptions

#### **Torreon, stony soils**

*Landscape:* Foothills

*Landform:* Fan remnants

*Position on landform:* Tread

*Parent material:* Alluvium derived from basalt and sedimentary rock

*Slope:* 8 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 20 percent subrounded cobbles, about 2 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 9.2 inches (high)

*Shrink-swell potential:* About 6.0 percent (moderate)

*Calcium carbonate maximum:* About 24 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Clayey Foothill

*Potential native vegetation:* western wheatgrass, bluegrass, green needlegrass, Sandberg bluegrass, fourwing saltbush, Indian ricegrass, winterfat, American vetch, purple prairieclover

*Land capability subclass (nonirrigated):* 6e



*Typical Profile:*

- A—0 to 7 inches; stony clay loam
- BA—7 to 11 inches; clay loam
- Bt—11 to 29 inches; clay
- Btk—29 to 37 inches; clay
- Bk—37 to 60 inches; cobbly clay loam

**Lorencito soils***Landscape:* Foothills*Landform:* Fan remnants*Position on landform:* Riser*Parent material:* Slope alluvium and residuum weathered from shale*Slope:* 10 to 35 percent*Aspect:* All aspects*Shape (down/across):* Linear/convex*Depth class:* Shallow*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic*Drainage class:* Well drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 1.7 inches (very low)*Shrink-swell potential:* About 7.5 percent (high)*Calcium carbonate maximum:* None*Gypsum maximum:* None*Salinity maximum:* About 2 mmhos/cm (nonsaline)*Sodium adsorption ratio maximum:* About 2 (slightly sodic)*Ecological site:* Shaly Foothill

*Potential native vegetation:* western wheatgrass, little bluestem, needleandthread,  
sideoats grama, blue grama, Gambel's oak, Indian ricegrass, true mountain  
mahogany, American vetch

*Land capability subclass (nonirrigated):* 6e*Typical Profile:*

- A—0 to 4 inches; gravelly clay loam
- AC—4 to 10 inches; clay
- Cr—10 to 16 inches; bedrock

**Minor Components**

Capulin and similar soils

*Composition:* About 10 percent*Landscape:* Foothills*Landform:* Fans*Position on landform:* Rise*Slope:* 8 to 15 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Basalt Loam*Distinguishing characteristics:* These soils have less than 35 percent clay content.**Major Uses**

Rangeland, wildlife habitat

## TmD—Trujillo loam, 3 to 9 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 49

*Elevation:* 6,800 to 8,000 feet (2,073 to 2,438 meters)

*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)

*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)

*Frost-free period:* 70 to 100 days

*Note:* Located in the foothills near Gulnare, Weston, and Stonewall.

### Map Unit Composition

Trujillo and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Trujillo soils

*Landscape:* Foothills

*Landform:* Fans, drainageways

*Position on landform:* Rise

*Parent material:* Loamy alluvium derived from sandstone

*Slope:* 3 to 9 percent

*Aspect:* North to southwest

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 8.2 inches (moderate)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* About 3 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy Foothill

*Potential native vegetation:* western wheatgrass, green needlegrass, blue grama, bluegrass, mountain muhly, winterfat, needleandthread, American vetch, fourwing saltbush, fringed sagewort, prairie junegrass, sun sedge

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

#### Typical Profile:

A—0 to 9 inches; loam

Bt1—9 to 13 inches; loam

Bt2—13 to 20 inches; clay loam

Bt3—20 to 36 inches; sandy clay loam

C—36 to 58 inches; fine sandy loam

Bk—58 to 70 inches; fine sandy loam

#### Minor Components

Molinaro and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fan remnants, terraces, valley floors

*Position on landform:* Rise, tread

*Slope:* 3 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Loamy Foothill

*Distinguishing characteristics:* These soils do not have a developed subsoil.

#### **Major Uses**

Rangeland, irrigated hay and pasture, and wildlife habitat

### **TnA—Trementina silty clay loam, 0 to 2 percent slopes, cool**

#### **Map Unit Setting**

*Major Land Resource Area:* 49

*Elevation:* 5,500 to 7,500 feet (1,676 to 2,286 meters)

*Mean annual precipitation:* 15 to 18 inches (381 to 457 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 120 to 140 days

*Note:* Located along major drainageways in the foothills and near basalt mesas.

#### **Map Unit Composition**

Trementina, cool and similar soils: 90 percent

Minor components: 10 percent

#### **Component Descriptions**

##### **Trementina, cool soils**

*Landscape:* Foothills

*Landform:* Flood plains, drainageways, terraces

*Position on landform:* Tread, dip

*Parent material:* Silty alluvium derived from sandstone and shale

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 11.2 inches (high)

*Shrink-swell potential:* About 3.5 percent (moderate)

*Flooding hazard:* Rare

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Clayey Foothill

*Potential native vegetation:* western wheatgrass, blue grama, green needlegrass,

fourwing saltbush, American vetch, bluegrass, purple prairieclover, scarlet

globemallow, sun sedge, winterfat

*Land capability subclass (irrigated):* 2s

*Land capability subclass (nonirrigated):* 3c

*Typical Profile:*

- A1—0 to 4 inches; silty clay loam
- A2—4 to 20 inches; silty clay loam
- Bw—20 to 31 inches; silty clay loam
- Bk—31 to 60 inches; silty clay loam

**Minor Components**

## Capulin and similar soils

*Composition:* About 5 percent*Landscape:* Foothills*Landform:* Fans*Position on landform:* Rise*Slope:* 1 to 2 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Loamy Foothill*Distinguishing characteristics:* These soils have less than 50 percent silt and a well-developed subsoil.

## Mauricanyon and similar soils

*Composition:* About 5 percent*Landscape:* Foothills, river valleys*Landform:* Flood plains, terraces*Position on landform:* Tread*Slope:* 0 to 2 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Flooding hazard:* Rare*Ecological site:* Overflow*Distinguishing characteristics:* These soils have less than 50 percent silt and more sand.**Major Uses**

Rangeland, irrigated cropland, wildlife habitat

**TnB—Trementina silt loam, 0 to 2 percent slopes, dry****Map Unit Setting***Major Land Resource Area:* 69*Elevation:* 4,500 to 5,500 feet (1,372 to 1,676 meters)*Mean annual precipitation:* 13 to 14 inches (331 to 356 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)*Frost-free period:* 130 to 155 days*Note:* Located along major drainageways in the northeast part of the county.**Map Unit Composition**

Trementina, dry and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### **Trementina, dry soils**

*Landscape:* Canyonlands, plains

*Landform:* Terraces, terraces

*Position on landform:* Tread

*Parent material:* Silty alluvium derived from sandstone and shale

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 10.3 inches (high)

*Shrink-swell potential:* About 3.0 percent (low)

*Flooding hazard:* Rare

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* None

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 2 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, sand dropseed, winterfat, American vetch, buffalograss, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2s

*Land capability subclass (nonirrigated):* 6c

#### *Typical Profile:*

A1—0 to 6 inches; silt loam

A2—6 to 15 inches; silt loam

Bw1—15 to 22 inches; silty clay loam

Bw2—22 to 30 inches; silty clay loam

Bk1—30 to 44 inches; silt loam

Bk2—44 to 65 inches; very fine sandy loam

#### **Minor Components**

Mauricanyon, dry and similar soils

*Composition:* About 10 percent

*Landscape:* Plains, canyonlands

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have more sand and less than 50 percent silt.

Bacid and similar soils

*Composition:* About 5 percent

*Landscape:* Plains  
*Landform:* Terraces  
*Position on landform:* Tread  
*Slope:* 1 to 5 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy  
*Distinguishing characteristics:* These soils have more than 35 percent clay content.

#### Major Uses

Irrigated cropland, rangeland, wildlife habitat

### To—Torreon silt loam, 1 to 4 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 70  
*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)  
*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)  
*Frost-free period:* 125 to 150 days  
*Note:* Located on all major basalt mesas in the southeast part of the county east of Branson.

#### Map Unit Composition

Torreon and similar soils: 85 percent  
 Minor components: 15 percent

#### Component Descriptions

##### Torreon soils

*Landscape:* Lava plateaus  
*Landform:* Lava plateaus  
*Parent material:* Loess and alluvium derived from basalt  
*Slope:* 1 to 4 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth class:* Very deep  
*Drainage class:* Well drained  
*Slowest permeability:* .06 to 0.2 in/hr (slow)  
*Available water capacity:* About 8.4 inches (moderate)  
*Shrink-swell potential:* About 6.1 percent (high)  
*Calcium carbonate maximum:* About 30 percent  
*Gypsum maximum:* None  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Basalt Loam

*Potential native vegetation:* western wheatgrass, blue grama, New Mexico feathergrass, big bluestem, sideoats grama, winterfat, little bluestem, true mountain mahogany, Gambel's oak, oneseed juniper

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 5 inches; silt loam

Bt1—5 to 13 inches; silty clay

Bt2—13 to 27 inches; silty clay

Btk—27 to 38 inches; silty clay

BCtk—38 to 56 inches; cobbly clay loam

Bk—56 to 72 inches; cobbly clay loam

**Minor Components**

Eguaje and similar soils

*Composition:* About 8 percent

*Landscape:* Lava plateaus

*Landform:* Lava plateaus

*Slope:* 3 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Basalt Breaks

*Distinguishing characteristics:* These soils average more than 35 percent rock fragment content.

Capulin and similar soils

*Composition:* About 7 percent

*Landscape:* Lava plateaus

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Basalt Loam

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

**Major Uses**

Rangeland, wildlife habitat

**ToD—Torreon clay loam, 3 to 9 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)



*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)

*Frost-free period:* 120 to 150 days

*Note:* Located on fans at the base of basalt mesas from Trinidad to Branson.

### Map Unit Composition

Torreon and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Torreon soils

*Landscape:* Foothills

*Landform:* Fans, fan remnants

*Position on landform:* Rise

*Parent material:* Alluvium derived from basalt

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 1 percent subrounded medium and coarse gravel and about 1 percent subrounded cobbles

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 9.1 inches (high)

*Shrink-swell potential:* About 5.9 percent (moderate)

*Calcium carbonate maximum:* About 24 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Clayey Foothill

*Potential native vegetation:* western wheatgrass, bluegrass, green needlegrass, Sandberg bluegrass, fourwing saltbush, Indian ricegrass, winterfat, American vetch, purple prairieclover

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 7 inches; clay loam

BA—7 to 10 inches; clay

Bt—10 to 29 inches; clay

Btk—29 to 35 inches; clay

Bk1—35 to 45 inches; cobbly clay loam

Bk2—45 to 64 inches; cobbly clay loam

#### Minor Components

Capulin and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Basalt Loam

*Distinguishing characteristics:* These soils have less than 35 percent clay content and a higher sand content.

**La Brier and similar soils**

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Depressions, fans

*Position on landform:* Dip, talf

*Slope:* 1 to 5 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/linear

*Drainage class:* Well drained

*Ecological site:* Basalt Loam

*Distinguishing characteristics:* These soils have cracks extending to the surface. (vertic properties)

**Major Uses**

Hay and pasture, rangeland, wildlife habitat

## **ToE—Torreon soils complex, 5 to 20 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 6,000 to 7,500 feet (1,829 to 2,286 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.5 degrees C.)

*Frost-free period:* 120 to 140 days

*Note:* located on fans at the base of Horseshoe and Barela Mesas in the south-central part of the county.

**Map Unit Composition**

Torreon and similar soils: 50 percent

Torreon, stony and similar soils: 45 percent

Minor components: 5 percent

**Component Descriptions**

**Torreon soils**

*Landscape:* Foothills

*Landform:* Fans, fan remnants

*Position on landform:* Rise

*Parent material:* Alluvium derived from basalt

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 8.4 inches (moderate)

*Shrink-swell potential:* About 6.1 percent (high)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Basalt Loam

*Potential native vegetation:* blue grama, western wheatgrass, New Mexico  
feathergrass, big bluestem, sideoats grama, winterfat, little bluestem, true  
mountain mahogany, Gambel's oak, oneseed juniper

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 5 inches; silt loam

Bt1—5 to 13 inches; silty clay

Bt2—13 to 27 inches; silty clay

Btk—27 to 38 inches; silty clay

BCtk—38 to 56 inches; cobbly clay loam

Bk—56 to 72 inches; cobbly clay loam

**Torreon, stony soils**

*Landscape:* Foothills

*Landform:* Fans, fan remnants

*Position on landform:* Rise

*Parent material:* Alluvium derived from basalt

*Slope:* 5 to 20 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 20 percent subrounded cobbles, about 2 percent  
subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 9.2 inches (high)

*Shrink-swell potential:* About 6.0 percent (moderate)

*Calcium carbonate maximum:* About 24 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Clayey Foothill

*Potential native vegetation:* western wheatgrass, bluegrass, green needlegrass,  
Sandberg bluegrass, fourwing saltbush, Indian ricegrass, winterfat, American  
vetch, purple prairieclover

*Land capability subclass (nonirrigated):* 6e

*Typical Profile:*

A—0 to 7 inches; stony clay loam

BA—7 to 11 inches; clay loam

Bt—11 to 29 inches; clay

Btk—29 to 37 inches; clay

Bk—37 to 60 inches; cobbly clay loam

**Minor Components**

Eguaje and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fan remnants

*Position on landform:* Rise

*Slope:* 3 to 8 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/convex  
*Drainage class:* Well drained  
*Ecological site:* Basalt Breaks  
*Distinguishing characteristics:* These soils average more than 35 percent rock fragment content.

#### Major Uses

Rangeland, wildlife habitat

### **TsD—Travessilla-Rock outcrop complex, 1 to 9 percent slopes**

#### Map Unit Setting

*Major Land Resource Area:* 70, 69, 67  
*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)  
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)  
*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)  
*Frost-free period:* 130 to 155 days  
*Note:* Located throughout the plains in the eastern half of the county.

#### Map Unit Composition

Travessilla and similar soils: 75 percent  
 Rock outcrop: 15 percent  
 Minor components: 10 percent

#### Component Descriptions

##### **Travessilla soils**

*Landscape:* Plains  
*Landform:* Scarps  
*Position on landform:* Crest  
*Parent material:* Slope alluvium and residuum weathered from sandstone  
*Slope:* 1 to 9 percent  
*Aspect:* All aspects  
*Shape (down/across):* Convex/linear  
*Surface fragments:* About 7 percent subangular gravel  
*Depth class:* Very shallow and shallow  
*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)  
*Available water capacity:* About 1.6 inches (very low)  
*Shrink-swell potential:* About 1.5 percent (low)  
*Calcium carbonate maximum:* About 15 percent  
*Gypsum maximum:* None  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Sandstone Breaks  
*Potential native vegetation:* sideoats grama, black grama, little bluestem, needleandthread, prairie junegrass, sand dropseed, mountain mahogany, twoneedle pinyon, oneseed juniper  
*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

- A—0 to 5 inches; sandy loam
- AC—5 to 11 inches; sandy loam
- Bk—11 to 14 inches; sandy loam
- R—14 to 60 inches; bedrock

**Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed Dakota sandstone.

*Landscape:* Plains

*Landform:* Scarps

*Parent material:* Sandstone

*Slope:* 3 to 9 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

**Minor Components**

Villegreen and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Rise

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils area located in the eastern parts of the county are 20 to 40 inches deep to sandstone bedrock.

Villedry and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Interfluves, plains

*Position on landform:* Rise

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are located in the north-central parts of the county and are 20 to 40 inches deep to sandstone bedrock.

**Major Uses**

Rangeland, wildlife habitat

**TsE—Torreon stony clay loam, 5 to 20 percent slopes****Map Unit Setting**

*Major Land Resource Area:* 70

*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.5 degrees C.)

*Frost-free period:* 120 to 150 days

*Note:* Located on fan remnants east of Trinidad to Trinchera.

### Map Unit Composition

Torreon and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Torreon soils

*Landscape:* Foothills

*Landform:* Fans, fan remnants

*Position on landform:* Rise

*Parent material:* Alluvium derived from igneous and sedimentary rock

*Slope:* 5 to 20 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Surface fragments:* About 10 percent subrounded cobbles, about 5 percent subrounded stones

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* .06 to 0.2 in/hr (slow)

*Available water capacity:* About 9.2 inches (high)

*Shrink-swell potential:* About 6.0 percent (moderate)

*Calcium carbonate maximum:* About 24 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Clayey Foothill

*Potential native vegetation:* western wheatgrass, bluegrass, green needlegrass, Sandberg bluegrass, fourwing saltbush, Indian ricegrass, winterfat, American vetch, purple prairieclover

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 7 inches; stony clay loam

BA—7 to 11 inches; clay loam

Bt—11 to 29 inches; clay

Btk—29 to 37 inches; clay

Bk—37 to 60 inches; cobbly clay loam

#### Minor Components

Capulin and similar soils

*Composition:* About 10 percent

*Landscape:* Foothills

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 5 to 20 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Basalt Loam

*Distinguishing characteristics:* These soils have less than 35 percent clay content.

### Major Uses

Rangeland, wildlife habitat

## TsF—Travessilla-Rock outcrop complex, 25 to 70 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67, 70, 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located throughout the northeast part of the county and in the extreme southeast part of the county bordering New Mexico.

### Map Unit Composition

Travessilla and similar soils: 50 percent

Rock outcrop: 40 percent

Minor components: 10 percent

### Component Descriptions

#### Travessilla soils

*Landscape:* Canyonlands, plains

*Landform:* Scarps, scarps

*Position on landform:* Crest, head slope

*Parent material:* Slope alluvium and residuum weathered from sandstone

*Slope:* 25 to 45 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Surface fragments:* About 7 percent subangular gravel

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 1.6 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandstone Breaks

*Potential native vegetation:* sideoats grama, black grama, little bluestem, needleandthread, prairie junegrass, sand dropseed, mountain mahogany, twoneedle pinyon, oneseed juniper

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

A—0 to 5 inches; sandy loam

AC—5 to 11 inches; sandy loam

Bk—11 to 14 inches; sandy loam

R—14 to 60 inches; bedrock





**Figure 12.—**The Purgatoire River Canyon in the central part of Las Animas County is typical of Travessilla-Rock outcrop complex, 25 to 70 percent slopes.

### **Rock outcrop**

*Description:* Rock outcrop consists of near-vertical escarpments of Dakota sandstone.

*Landscape:* Canyonlands

*Landform:* Scarps

*Parent material:* Sandstone

*Slope:* 25 to 70 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

### **Minor Components**

Ustic Haplocalcids and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands

*Landform:* Pediments

*Position on landform:* Base slope

*Slope:* 25 to 45 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Gravel Breaks

*Distinguishing characteristics:* These soils are greater than 40 inches to bedrock with large cobbles, stones and boulders.

### Major Uses

Rangeland, wildlife habitat

## Us—Aridic Calciustolls, 15 to 35 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 70

*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 54 degrees F. (9.0 to 12.0 degrees C.)

*Frost-free period:* 120 to 145 days

*Note:* Located on steep side slopes of basalt mesas east of Barela to the Baca County line.

### Map Unit Composition

Aridic Calciustolls and similar soils: 60 percent

Minor components: 40 percent

### Component Descriptions

#### Aridic Calciustolls soils

*Landscape:* Lava plateaus, plains

*Landform:* Hills, hogbacks

*Position on landform:* Side slope, head slope

*Parent material:* Colluvium derived from basalt over residuum weathered from sandstone and shale

*Slope:* 15 to 35 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Surface fragments:* About 10 percent subrounded stones, about 20 percent subrounded cobbles

*Depth class:* Moderately deep to very deep

*Depth to restrictive feature:* 20 to 71 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 6.1 inches (moderate)

*Shrink-swell potential:* About 2.5 percent (low)

*Calcium carbonate maximum:* About 50 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Basalt Breaks

*Potential native vegetation:* sideoats grama, New Mexico feathergrass, little bluestem, mountain mahogany, Gambel's oak, oneseed juniper, mountain muhly, twoneedle pinyon, American vetch

*Land capability subclass (nonirrigated):* 7e

#### Typical Profile:

Oi—0 to 1 inch; slightly decomposed plant material

A—1 inch to 6 inches; very stony loam

Bw—6 to 14 inches; very cobbly clay loam

Bk1—14 to 19 inches; cobbly clay loam

Bk2—19 to 42 inches; silt loam

Cr—42 to 60 inches; bedrock

### Minor Components

Calcidic Argiustolls and similar soils

*Composition:* About 25 percent

*Landscape:* Lava plateaus

*Landform:* Hills

*Position on landform:* Side slope

*Slope:* 15 to 35 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth to restrictive feature:* 40 to 72 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Basalt Breaks

*Distinguishing characteristics:* These soils have a developed subsoil and average greater than 35 percent clay content.

Ritoazul and similar soils

*Composition:* About 10 percent

*Landscape:* Lava plateaus

*Landform:* Hills, pediments

*Position on landform:* Side slope, rise

*Slope:* 5 to 15 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Clayey (formerly Clayey Plains)

*Distinguishing characteristics:* These soils are 20 to 40 inches deep to shale bedrock.

Rock outcrop

*Composition:* About 5 percent

*Landscape:* Lava plateaus

*Landform:* Scarps

*Slope:* 15 to 35 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of ridges and near-vertical escarpments of basalt.

### Major Uses

Rangeland, wildlife habitat

## VB—Vona loamy sand, 0 to 3 percent slopes, overblown

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located east of Kim to the Baca County line. These soils have accumulations of windblown loamy sand materials.

### Map Unit Composition

Vona, overblown and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### **Vona, overblown soils**

*Landscape:* Plains

*Landform:* Plains, hills

*Position on landform:* Side slope, crest, tal

*Parent material:* Eolian deposits

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 7.0 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy (formerly Sandy Plains)

*Potential native vegetation:* blue grama, prairie sandreed, needleandthread, sand bluestem, little bluestem, switchgrass, western wheatgrass, sideoats grama, sun sedge, western sandcherry, American vetch, sand dropseed, sand sagebrush, spreading buckwheat, dotted gayfeather

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4e

#### *Typical Profile:*

A—0 to 13 inches; loamy sand

Bt1—13 to 19 inches; sandy loam

Bt2—19 to 29 inches; sandy loam

Bk1—29 to 40 inches; sandy loam

Bk2—40 to 72 inches; sandy loam

#### **Minor Components**

Valent and similar soils

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Dunes, hills

*Position on landform:* Crest, head slope, head slope

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Excessively drained

*Ecological site:* Sands (formerly Deep Sands)

*Distinguishing characteristics:* These soils have loamy sand and sand textures throughout the profile, and lack a developed subsoil.

**Otero and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Hills, plains, ridges*Position on landform:* Side slope, rise, head slope*Slope:* 0 to 3 percent*Aspect:* All aspects*Shape (down/across):* Convex/convex*Drainage class:* Well drained*Ecological site:* Sandy (formerly Sandy Plains)*Distinguishing characteristics:* These soils do not have developed subsoils and are typically calcareous to the surface.**Blown-out land***Composition:* About 1 percent*Landscape:* Plains*Landform:* Hills*Position on landform:* Crest*Slope:* 1 to 3 percent*Aspect:* All aspects*Shape (down/across):* Concave/concave*Drainage class:* Excessively drained*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.**Major Uses**

Rangeland, wildlife habitat

**VD—Dargol-Stout-Vamer complex, 1 to 9 percent slopes****Map Unit Setting***Major Land Resource Area:* 49*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)*Frost-free period:* 70 to 100 days*Note:* Located at upper elevations of the foothills from Raton Pass to Tercio.**Map Unit Composition**

Dargol and similar soils: 40 percent

Stout and similar soils: 25 percent

Vamer and similar soils: 20 percent

Minor components: 15 percent

**Component Descriptions****Dargol soils***Landscape:* Foothills*Landform:* Hills*Position on landform:* Side slope, head slope*Parent material:* Slope alluvium and residuum weathered from shale and siltstone*Slope:* 3 to 9 percent*Aspect:* Northwest to southwest*Shape (down/across):* Linear/linear



*Surface fragments:* About 1 percent subrounded stones, about 4 percent subrounded cobbles, about 15 percent subrounded gravel

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* .001 to .06 in/hr (very slow)

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 6.1 percent (high)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: ponderosa pine, Rocky Mountain Douglas fir

Other plants: Arizona fescue, mountain muhly, nodding brome, Parry's danthonia, western wheatgrass, elk sedge, Gambel's oak, kinnikinnick, pine dropseed, prairie junegrass

*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

Oe—0 to 1 inch; moderately decomposed plant material

E—1 inch to 6 inches; loam

Bt1—6 to 10 inches; clay

Bt2—10 to 29 inches; clay

R—29 to 60 inches; bedrock

### **Stout soils**

*Landscape:* Foothills

*Landform:* Hills

*Position on landform:* Head slope, interfluvium

*Parent material:* Slope alluvium and residuum weathered from sandstone

*Slope:* 1 to 9 percent

*Aspect:* North to southwest

*Shape (down/across):* Linear/linear

*Surface fragments:* About 5 percent subrounded cobbles, about 2 percent subrounded stones, about 10 percent subrounded gravel

*Depth class:* Shallow

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 1.8 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Potential native vegetation:*

Common trees: ponderosa pine

Other plants: Arizona fescue, mountain muhly, nodding brome, Parry's danthonia, elk sedge, Gambel's oak, little bluestem, pine dropseed, prairie junegrass

*Land capability subclass (nonirrigated):* 6s

*Typical Profile:*

- Oi—0 to 1 inch; slightly decomposed plant material
- A—1 inch to 5 inches; gravelly sandy loam
- Bw—5 to 16 inches; gravelly sandy loam
- R—16 to 60 inches; bedrock

**Vamer soils***Landscape:* Foothills*Landform:* Hills*Position on landform:* Head slope, interfluvium*Parent material:* Slope alluvium and/or colluvium derived from shale over sandstone*Slope:* 1 to 9 percent*Aspect:* Northwest to southwest*Shape (down/across):* Linear/linear*Surface fragments:* About 1 percent subrounded stones, about 2 percent subrounded cobbles*Depth class:* Shallow*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic*Drainage class:* Well drained*Slowest permeability:* .06 to 0.2 in/hr (slow)*Available water capacity:* About 2.6 inches (very low)*Shrink-swell potential:* About 6.0 percent (moderate)*Calcium carbonate maximum:* None*Gypsum maximum:* None*Salinity maximum:* About 2 mmhos/cm (nonsaline)*Sodium adsorption ratio maximum:* About 0 (nonsodic)*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii*Potential native vegetation:*

Common trees: ponderosa pine

Other plants: mountain muhly, Arizona fescue, nodding brome, pine dropseed, western wheatgrass, elk sedge, Gambel's oak, little bluestem, Parry's dantonionia, prairie junegrass

*Land capability subclass (nonirrigated):* 6s*Typical Profile:*

- Oi—0 to 1 inch; slightly decomposed plant material
- A—1 inch to 3 inches; fine sandy loam
- E—3 to 7 inches; fine sandy loam
- Bt—7 to 16 inches; clay
- R—16 to 60 inches; bedrock

**Minor Components**

Fuera and similar soils

*Composition:* About 10 percent*Landscape:* Foothills*Landform:* Hills*Position on landform:* Side slope*Slope:* 3 to 9 percent*Aspect:* All aspects*Shape (down/across):* Linear/convex*Drainage class:* Well drained*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii



*Distinguishing characteristics:* These soils are greater than 60 inches deep to bedrock.

Littlepine and similar soils

*Composition:* About 5 percent

*Landscape:* Foothills

*Landform:* Fan remnants, hills

*Position on landform:* Rise, side slope, base slope

*Slope:* 1 to 9 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/convex

*Drainage class:* Well drained

*Ecological site:* Pinus ponderosa-Juniperus scopulorum/Quercus gambelii

*Distinguishing characteristics:* These soils are greater than 60 inches deep to bedrock and average less than 35 percent clay content.

### Major Uses

Woodland, wildlife habitat

## VnC—Vona sandy loam, 3 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located east of Kim to the Baca County line.

### Map Unit Composition

Vona and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Vona soils

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Side slope, head slope

*Parent material:* Eolian deposits

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 7.0 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy (formerly Sandy Plains)

*Potential native vegetation:* blue grama, prairie sandreed, needleandthread, sand bluestem, little bluestem, switchgrass, western wheatgrass, sideoats grama, sun sedge, western sandcherry, American vetch, sand dropseed, sand sagebrush, spreading buckwheat, dotted gayfeather

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 5 inches; sandy loam

Bt1—5 to 12 inches; sandy loam

Bt2—12 to 17 inches; sandy loam

Bk1—17 to 38 inches; fine sandy loam

Bk2—38 to 41 inches; sandy loam

Bk3—41 to 68 inches; loamy sand

**Minor Components**

**Olneest and similar soils**

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Rise, side slope, base slope

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have more than 18 percent clay content in the profile.

**Ascalon and similar soils**

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains, hills, ridges

*Position on landform:* Rise, base slope

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have more than 18 percent clay content and a thick dark surface layer.

**Blown-out land**

*Composition:* About 1 percent

*Landscape:* Plains

*Landform:* Hills

*Position on landform:* Crest

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Excessively drained

*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.

### Major Uses

Nonirrigated cropland, rangeland, wildlife habitat

## VoB—Vona sandy loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located east of Kim to the Baca County line.

### Map Unit Composition

Vona and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Vona soils

*Landscape:* Plains

*Landform:* Plains, hills

*Position on landform:* Base slope, talf, side slope

*Parent material:* Eolian sands

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 7.0 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy (formerly Sandy Plains)

*Potential native vegetation:* blue grama, prairie sandreed, needleandthread, sand bluestem, little bluestem, switchgrass, western wheatgrass, sideoats grama, sun sedge, western sandcherry, American vetch, sand dropseed, sand sagebrush, spreading buckwheat, dotted gayfeather

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

#### Typical Profile:

A—0 to 5 inches; sandy loam

Bt1—5 to 12 inches; sandy loam

Bt2—12 to 17 inches; sandy loam

Bk1—17 to 38 inches; fine sandy loam

Bk2—38 to 41 inches; sandy loam

Bk3—41 to 68 inches; loamy sand

**Minor Components****Olneest and similar soils***Composition:* About 9 percent*Landscape:* Plains*Landform:* Hills, plains*Position on landform:* Base slope, interfluve, tal*Slope:* 0 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Sandy (formerly Sandy Plains)*Distinguishing characteristics:* These soils have more than 18 percent clay content.**Ascalon and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Plains, hills, ridges*Position on landform:* Base slope, rise*Slope:* 0 to 3 percent*Aspect:* All aspects*Shape (down/across):* Convex/linear*Drainage class:* Well drained*Ecological site:* Sandy (formerly Sandy Plains)*Distinguishing characteristics:* These soils have more than 18 percent clay content and a thick dark surface layer.**Blown-out land***Composition:* About 1 percent*Landscape:* Plains*Landform:* Ridges*Position on landform:* Crest*Slope:* 1 to 3 percent*Aspect:* All aspects*Shape (down/across):* Concave/concave*Drainage class:* Excessively drained*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.**Major Uses**

Nonirrigated cropland, rangeland, wildlife habitat

**VoC—Vonid sandy loam, 3 to 7 percent slopes****Map Unit Setting***Major Land Resource Area:* 69*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the central part of the county near Seven Lakes Reservoir.

### Map Unit Composition

Vonid and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Vonid soils

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Side slope, head slope, rise

*Parent material:* Eolian deposits

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth class:* Very deep

*Drainage class:* Somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 6.6 inches (moderate)

*Shrink-swell potential:* About 1.2 percent (low)

*Calcium carbonate maximum:* About 10 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, sideoats grama, little bluestem, needleandthread, sand dropseed, western wheatgrass, fourwing saltbush, American vetch

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 6 inches; sandy loam

Bt1—6 to 11 inches; sandy loam

Bt2—11 to 16 inches; sandy loam

Bk1—16 to 24 inches; sandy loam

Bk2—24 to 33 inches; loamy sand

Bk3—33 to 60 inches; loamy sand

#### Minor Components

Fort and similar soils

*Composition:* About 9 percent

*Landscape:* Plains

*Landform:* Fans, hills, ridges

*Position on landform:* Side slope, rise

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils have more than 18 percent clay content.

**Kimera and similar soils***Composition:* About 5 percent*Landscape:* Plains*Landform:* Hills, ridges*Position on landform:* Head slope, side slope*Slope:* 3 to 7 percent*Aspect:* All aspects*Shape (down/across):* Convex/linear*Drainage class:* Well drained*Ecological site:* Sandy*Distinguishing characteristics:* These soils have more than 18 percent clay content and less sand.**Blown-out land***Composition:* About 1 percent*Landscape:* Plains*Landform:* Hills*Position on landform:* Rise*Slope:* 3 to 6 percent*Aspect:* All aspects*Shape (down/across):* Concave/concave*Drainage class:* Excessively drained*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.**Major Uses**

Rangeland, wildlife habitat

**VT—Villedry-Travessilla complex, 1 to 8 percent slopes****Map Unit Setting***Major Land Resource Area:* 69*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)*Frost-free period:* 130 to 155 days*Note:* Located in the northeast part of the county.**Map Unit Composition**

Villedry and similar soils: 50 percent

Travessilla and similar soils: 40 percent

Minor components: 10 percent

**Component Descriptions****Villedry soils***Landscape:* Canyonlands*Landform:* Interfluves*Position on landform:* Rise*Parent material:* Loess over residuum weathered from sandstone

*Slope:* 1 to 8 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 6.6 inches (moderate)

*Shrink-swell potential:* About 2.4 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*

A—0 to 4 inches; silt loam

BA—4 to 7 inches; silt loam

Bt—7 to 15 inches; silty clay loam

Btk—15 to 25 inches; silty clay loam

Bk1—25 to 33 inches; clay loam

2Bk2—33 to 38 inches; gravelly loam

R—38 to 60 inches; bedrock

**Travessilla soils**

*Landscape:* Canyonlands

*Landform:* Scarps

*Position on landform:* Crest

*Parent material:* Slope alluvium over residuum weathered from sandstone

*Slope:* 1 to 8 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 7 percent subangular gravel

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 1.6 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandstone Breaks

*Potential native vegetation:*

Common trees: Rocky Mountain juniper, twoneedle pinyon

Other plants: sideoats grama, blue grama, little bluestem, big bluestem, black grama, needleandthread, prairie sandreed, sand dropseed, western



wheatgrass, mountain mahogany, skunkbush sumac, yellow Indiangrass,  
oneseed juniper, twoneedle pinyon  
*Land capability subclass (nonirrigated): 6s*

*Typical Profile:*

A—0 to 5 inches; sandy loam  
AC—5 to 11 inches; sandy loam  
Bk—11 to 14 inches; sandy loam  
R—14 to 60 inches; bedrock

**Minor Components**

Almagre and similar soils

*Composition:* About 8 percent

*Landscape:* Canyonlands

*Landform:* Interfluves

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are 40 to 60 inches deep to sandstone bedrock.

Rock outcrop

*Composition:* About 2 percent

*Landscape:* Canyonlands

*Landform:* Scarps

*Slope:* 2 to 4 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed Dakota sandstone.

**Major Uses**

Rangeland, wildlife habitat

**VtC—Valent fine sand, 2 to 8 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 5,700 feet (1,524 to 1,737 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located east of Kim to the Baca County line.

**Map Unit Composition**

Valent and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Valent soils

*Landscape:* Plains

*Landform:* Dunes, hills

*Position on landform:* Head slope, crest

*Parent material:* Eolian sands

*Slope:* 2 to 8 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Depth class:* Very deep

*Drainage class:* Excessively drained

*Slowest permeability:* 6.0 to 20 in/hr (rapid)

*Available water capacity:* About 4.7 inches (low)

*Shrink-swell potential:* About 0.2 percent (low)

*Calcium carbonate maximum:* None

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sands (formerly Deep Sands)

*Potential native vegetation:* sand bluestem, prairie sandreed, switchgrass, blue grama, sand dropseed, western sandcherry, yellow Indiangrass, leadplant, little bluestem, needleandthread, sand sagebrush, western wheatgrass, dotted gayfeather, Indian ricegrass, purple prairieclover, sideoats grama

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

#### *Typical Profile:*

A—0 to 5 inches; fine sand

C—5 to 65 inches; fine sand

#### Minor Components

##### Otero and similar soils

*Composition:* About 8 percent

*Landscape:* Plains

*Landform:* Hills, plains, ridges

*Position on landform:* Side slope, rise, head slope

*Slope:* 2 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/convex

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have predominantly sandy loam textures.

##### Vona and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, ridges

*Position on landform:* Side slope, head slope

*Slope:* 2 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Somewhat excessively drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have predominantly sandy loam textures and a developed subsoil.

#### Blown-out land

*Composition:* About 2 percent

*Landscape:* Plains

*Landform:* Dunes

*Position on landform:* Crest

*Slope:* 2 to 8 percent

*Aspect:* All aspects

*Shape (down/across):* Concave/concave

*Drainage class:* Excessively drained

*Distinguishing characteristics:* Blowouts consist of areas of extreme wind erosion that leave areas devoid of topsoil and subsoil.

#### Major Uses

Rangeland, wildlife habitat

## W—Water

#### Map Unit Setting

*Major Land Resource Area:*

*Elevation:* —

*Mean annual precipitation:* —

*Mean annual air temperature:* —

*Frost-free period:* —

*Note:* Located as lakes and streams throughout the county.

#### Map Unit Composition

Water: 100 percent

#### Component Descriptions

#### Water

*Aspect:* North to southwest

## Wa—Wapiti loam, 0 to 3 percent slopes

#### Map Unit Setting

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the eastern part of the county near Kim, Tobe, Villegreen, and Andrix.

#### Map Unit Composition

Wapiti and similar soils: 85 percent

Minor components: 15 percent

## Component Descriptions

### Wapiti soils

*Landscape:* Plains

*Landform:* Terraces, plains, drainageways

*Position on landform:* Tread, talf, dip

*Parent material:* Alluvium derived from sedimentary rock

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 10.5 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* None

*Salinity maximum:* About 0 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, winterfat, American vetch, buffalograss, purple prairieclover, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 2e

*Land capability subclass (nonirrigated):* 4c

#### *Typical Profile:*

A—0 to 6 inches; loam

Bt—6 to 14 inches; clay loam

Btk—14 to 27 inches; clay loam

Bk1—27 to 38 inches; loam

Bk2—38 to 70 inches; loam

### Minor Components

#### Ascalon and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains, hills, ridges

*Position on landform:* Talf

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have more than 45 percent sand in the profile.

#### Olneest and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, plains

*Position on landform:* Base slope, talf, interfluve

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Sandy (formerly Sandy Plains)

*Distinguishing characteristics:* These soils have more than 45 percent sand and do not have a thick dark surface layer.

Trementina, warm and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy (formerly Loamy Plains)

*Distinguishing characteristics:* These soils have less sand and more than 50 percent silt in the profile.

#### **Major Uses**

Nonirrigated cropland, rangeland, wildlife habitat

### **WC—Plughat-Villegreen complex, 1 to 4 percent slopes**

#### **Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the south-central and eastern parts of the county near Tobe, Villagreen, and Branson.

#### **Map Unit Composition**

Plughat and similar soils: 43 percent

Villegreen and similar soils: 41 percent

Minor components: 16 percent

#### **Component Descriptions**

##### **Plughat soils**

*Landscape:* Plains

*Landform:* Plains, interfluves

*Position on landform:* Rise

*Parent material:* Loess over residuum weathered from sandstone

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Deep

*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 8.6 inches (moderate)  
*Shrink-swell potential:* About 2.3 percent (low)  
*Calcium carbonate maximum:* About 40 percent  
*Gypsum maximum:* About 2 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, winterfat, sand dropseed, American vetch, purple prairieclover, scarlet globemallow, sun sedge  
*Land capability subclass (irrigated):* 2e  
*Land capability subclass (nonirrigated):* 4c

*Typical Profile:*

A—0 to 3 inches; silt loam  
 Bt1—3 to 6 inches; silty clay loam  
 Bt2—6 to 13 inches; silty clay loam  
 Btk—13 to 27 inches; silty clay loam  
 Bk1—27 to 34 inches; silt loam  
 Bk2—34 to 48 inches; loam  
 R—48 to 60 inches; bedrock

**Villegreen soils**

*Landscape:* Plains  
*Landform:* Interfluves, plains  
*Position on landform:* Rise  
*Parent material:* Loess over residuum weathered from sandstone  
*Slope:* 1 to 4 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth class:* Moderately deep  
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)  
*Available water capacity:* About 5.6 inches (low)  
*Shrink-swell potential:* About 2.3 percent (low)  
*Calcium carbonate maximum:* About 30 percent  
*Gypsum maximum:* About 2 percent  
*Salinity maximum:* About 2 mmhos/cm (nonsaline)  
*Sodium adsorption ratio maximum:* About 0 (nonsodic)  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, winterfat, sand dropseed, bottlebrush squirreltail, rabbitbrush, broom snakeweed, red threeawn  
*Land capability subclass (irrigated):* 3e  
*Land capability subclass (nonirrigated):* 4e

*Typical Profile:*

A—0 to 6 inches; loam  
 BA—6 to 9 inches; silty clay loam  
 Bt—9 to 15 inches; silty clay loam  
 Btk—15 to 24 inches; silty clay loam  
 2Bk—24 to 32 inches; channery loam  
 R—32 to 60 inches; bedrock

**Minor Components**

## Wiley and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Plains*Position on landform:* Talf*Slope:* 1 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Loamy (formerly Loamy Plains)*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

## Baca and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Plains*Position on landform:* Talf*Slope:* 1 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Loamy (formerly Loamy Plains)*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock and average more than 35 percent clay content.

## Boxcanyon and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Plains*Position on landform:* Dip*Slope:* 1 to 3 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic*Drainage class:* Well drained*Ecological site:* Loamy (formerly Loamy Plains)*Distinguishing characteristics:* These soils are 40 to 60 inches to bedrock and average more than 35 percent clay content.

## Rock outcrop

*Composition:* About 1 percent*Landscape:* Plains*Landform:* Scarps*Slope:* 2 to 4 percent*Aspect:* All aspects*Depth to restrictive feature:* 0 inches to bedrock, lithic*Distinguishing characteristics:* Rock outcrop consists of areas of exposed Dakota sandstone.**Major Uses**

Nonirrigated cropland, rangeland, wildlife habitat



## **WeB—Wiley silt loam, 0 to 3 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 67

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located throughout the eastern half of the county.

### **Map Unit Composition**

Wiley and similar soils: 85 percent

Minor components: 15 percent

### **Component Descriptions**

#### **Wiley soils**

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Parent material:* Loess

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 10.9 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 30 percent

*Gypsum maximum:* About 3 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 7 (slightly sodic)

*Ecological site:* Loamy (formerly Loamy Plains)

*Potential native vegetation:* blue grama, western wheatgrass, green needlegrass, buffalograss, winterfat, American vetch, purple prairieclover, sand dropseed, scarlet globemallow, sun sedge

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 4c

#### *Typical Profile:*

A—0 to 4 inches; silt loam

Bt1—4 to 9 inches; silty clay loam

Bt2—9 to 15 inches; silty clay loam

Btk—15 to 26 inches; silty clay loam

Bk1—26 to 35 inches; silt loam

Bk2—35 to 44 inches; silt loam

Bk3—44 to 72 inches; silt loam

#### **Minor Components**

Baca and similar soils

*Composition:* About 5 percent

*Landscape:* Plains  
*Landform:* Plains  
*Position on landform:* Talf  
*Slope:* 0 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils have more than 35 percent clay content.

Plughat and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Plains  
*Position on landform:* Rise  
*Slope:* 1 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils are 40 to 60 inches deep to sandstone bedrock.

Villegreen and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Plains  
*Position on landform:* Rise  
*Slope:* 1 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Ecological site:* Loamy (formerly Loamy Plains)  
*Distinguishing characteristics:* These soils are 20 to 40 inches deep to sandstone bedrock.

**Major Uses**

Nonirrigated cropland, rangeland, wildlife habitat

**WM—Minnequa-Wilid silt loams, 1 to 6 percent slopes**

**Map Unit Setting**

*Major Land Resource Area:* 69  
*Elevation:* 4,400 to 6,000 feet (1,341 to 1,829 meters)  
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
*Frost-free period:* 130 to 155 days  
*Note:* Located in the northern half of the county in the plains.

### Map Unit Composition

Minnequa and similar soils: 50 percent

Wilid and similar soils: 35 percent

Minor components: 15 percent

### Component Descriptions

#### Minnequa soils

*Landscape:* Plains

*Landform:* Pediments, plains

*Position on landform:* Rise

*Parent material:* Slope alluvium over residuum weathered from limestone and shale

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 3.7 inches (low)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* About 39 percent

*Gypsum maximum:* About 5 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 8 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 4 inches; silt loam

Bk1—4 to 14 inches; silty clay loam

Bk2—14 to 24 inches; silty clay loam

Cr1—24 to 29 inches; bedrock

Cr2—29 to 60 inches; bedrock

#### Wilid soils

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Parent material:* Loess

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 11.0 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*

A—0 to 6 inches; silt loam

Bt—6 to 10 inches; silty clay loam

Btk—10 to 30 inches; silty clay loam

B1k—30 to 44 inches; silty clay loam

Bk2—44 to 60 inches; silt loam

**Minor Components**

Manzanola and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Talf

*Slope:* 1 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are similar to Wilid soils but have more than 35 percent clay content.

Shingle and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, pediments

*Position on landform:* Side slope, head slope, rise

*Slope:* 2 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, paralithic

*Drainage class:* Well drained

*Ecological site:* Shaly Plains

*Distinguishing characteristics:* These soils are less than 20 inches deep to shale bedrock.

Manvel and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Fans, plains

*Position on landform:* Rise, tread

*Slope:* 2 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are similar to Wilid soils, but have high amounts of calcium carbonate throughout the profile.

### Major Uses

Rangeland, wildlife habitat

## WrB—Wilid silty clay loam, 1 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,400 to 6,000 feet (1,341 to 1,829 meters)

*Mean annual precipitation:* 13 to 15 inches (331 to 381 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Note:* Located in the irrigated areas near Hoehne and Model. These soils have more clay in the surface layer due to muddy irrigation water.

### Map Unit Composition

Wilid and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Wilid soils

*Landscape:* Plains

*Landform:* Old terraces

*Position on landform:* Tread

*Parent material:* Silty and clayey alluvium from irrigation water over silty alluvium derived from sedimentary rock

*Slope:* 1 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 10.8 inches (high)

*Shrink-swell potential:* About 2.6 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Clayey

*Potential native vegetation:* western wheatgrass, blue grama, fourwing saltbush, galleta, green needlegrass, alkali sacaton, winterfat, American vetch

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6c

#### Typical Profile:

Ap—0 to 6 inches; silty clay loam

Btk—6 to 18 inches; silty clay loam

BCtk—18 to 36 inches; silt loam

Bk—36 to 60 inches; silt loam

**Minor Components**

## Bacid and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Old terraces*Position on landform:* Tread*Slope:* 0 to 2 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Drainage class:* Well drained*Ecological site:* Clayey*Distinguishing characteristics:* These soils have more than 35 percent clay content.

## Minnequa and similar soils

*Composition:* About 5 percent*Landscape:* Plains*Landform:* Pediments, plains*Position on landform:* Rise*Slope:* 1 to 6 percent*Aspect:* All aspects*Shape (down/across):* Linear/linear*Depth to restrictive feature:* 20 to 40 inches to bedrock, paralithic*Drainage class:* Well drained*Ecological site:* Loamy*Distinguishing characteristics:* These soils are 20 to 40 inches deep to soft limestone and shale bedrock.**Major Uses**

Irrigated cropland

**WV—Almagre-Villedry silt loams, 1 to 4 percent slopes****Map Unit Setting***Major Land Resource Area:* 69*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)*Frost-free period:* 130 to 155 days*Note:* Located in the north-central and northeastern parts of the county.**Map Unit Composition**

Almagre and similar soils: 45 percent

Villedry and similar soils: 44 percent

Minor components: 11 percent

**Component Descriptions****Almagre soils***Landscape:* Plains*Landform:* Plains, interfluves*Position on landform:* Rise

*Parent material:* Loess over residuum weathered from sandstone

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Deep

*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 8.8 inches (moderate)

*Shrink-swell potential:* About 2.0 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6c

*Typical Profile:*

A—0 to 5 inches; silt loam

BA—5 to 9 inches; silt loam

Bt—9 to 23 inches; silty clay loam

Btk—23 to 30 inches; silty clay loam

Bk1—30 to 40 inches; silt loam

Bk2—40 to 50 inches; loam

R—50 to 60 inches; bedrock

**Villedry soils**

*Landscape:* Plains

*Landform:* Interfluves, plains

*Position on landform:* Rise

*Parent material:* Loess over residuum weathered from sandstone

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Moderately deep

*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 6.6 inches (moderate)

*Shrink-swell potential:* About 2.4 percent (low)

*Calcium carbonate maximum:* About 40 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 5 (slightly sodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing



saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass,  
American vetch

*Land capability subclass (irrigated): 3e*

*Land capability subclass (nonirrigated): 6c*

*Typical Profile:*

A—0 to 4 inches; silt loam

BA—4 to 7 inches; silt loam

Bt—7 to 15 inches; silty clay loam

Btk—15 to 25 inches; silty clay loam

Bk1—25 to 33 inches; clay loam

2Bk2—33 to 38 inches; gravelly loam

R—38 to 60 inches; bedrock

**Minor Components**

Wilid and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Slope:* 0 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils are greater than 60 inches to bedrock.

Travessilla and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Scarps

*Position on landform:* Crest

*Slope:* 1 to 4 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 10 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Sandstone Breaks

*Distinguishing characteristics:* These soils are less than 20 inches to sandstone bedrock.

Rock outcrop

*Composition:* About 1 percent

*Landscape:* Canyonlands

*Landform:* Scarps

*Slope:* 2 to 4 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Distinguishing characteristics:* Rock outcrop consists of areas of exposed Dakota sandstone.

### Major Uses

Rangeland, wildlife habitat

## WyB—Wilid silt loam, 0 to 3 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Note:* Located in the central, north-central, and northeastern parts of the county.

### Map Unit Composition

Wilid and similar soils: 85 percent

Minor components: 15 percent

### Component Descriptions

#### Wilid soils

*Landscape:* Plains

*Landform:* Plains

*Position on landform:* Talf

*Parent material:* Loess

*Slope:* 0 to 3 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 0.2 to 0.6 in/hr (moderately slow)

*Available water capacity:* About 11.0 inches (high)

*Shrink-swell potential:* About 2.3 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 4 mmhos/cm (very slightly saline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Loamy

*Potential native vegetation:* blue grama, western wheatgrass, galleta, fourwing saltbush, sand dropseed, sideoats grama, winterfat, green needlegrass, American vetch

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6c

#### Typical Profile:

A—0 to 6 inches; silt loam

Bt—6 to 10 inches; silty clay loam

Btk—10 to 30 inches; silty clay loam

Bk1—30 to 44 inches; silty clay loam

Bk2—44 to 60 inches; silt loam

### Minor Components

Almagre and similar soils

*Composition:* About 5 percent

*Landscape:* Plains  
*Landform:* Plains  
*Position on landform:* Talf  
*Slope:* 1 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth to restrictive feature:* 40 to 60 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Ecological site:* Loamy  
*Distinguishing characteristics:* These soils are 40 to 60 inches deep to sandstone bedrock.

Villedry and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Interfluves  
*Position on landform:* Rise  
*Slope:* 1 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Depth to restrictive feature:* 20 to 40 inches to bedrock, lithic  
*Drainage class:* Well drained  
*Ecological site:* Loamy  
*Distinguishing characteristics:* These soils are 20 to 40 inches deep to sandstone bedrock.

Manzanola and similar soils

*Composition:* About 5 percent  
*Landscape:* Plains  
*Landform:* Fans, plains  
*Position on landform:* Talf  
*Slope:* 1 to 3 percent  
*Aspect:* All aspects  
*Shape (down/across):* Linear/linear  
*Drainage class:* Well drained  
*Ecological site:* Loamy  
*Distinguishing characteristics:* These soils have more than 35 percent clay content.

### Major Uses

Irrigated cropland, rangeland, wildlife habitat

## YaA—Yattle fine sandy loam, 0 to 1 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69  
*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)  
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)  
*Frost-free period:* 135 to 155 days  
*Note:* Located along drainageways of the redrocks area in the northeastern parts of the county.

### Map Unit Composition

Yattle and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Yattle soils

*Landscape:* Canyonlands

*Landform:* Terraces

*Position on landform:* Tread

*Parent material:* Red sandy alluvium derived from sandstone

*Slope:* 0 to 1 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 8.9 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 8 (slightly sodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, little bluestem, needleandthread, sand dropseed, sideoats grama, western wheatgrass, fourwing saltbush, sand sagebrush, sun sedge, American vetch, spreading buckwheat

*Land capability subclass (irrigated):* 3e

*Land capability subclass (nonirrigated):* 6c

#### Typical Profile:

A—0 to 4 inches; fine sandy loam

Bw1—4 to 28 inches; fine sandy loam

Bw2—28 to 33 inches; fine sandy loam

Bk1—33 to 43 inches; loam

Bk2—43 to 70 inches; fine sandy loam

### Minor Components

Mauricanyon and similar soils

*Composition:* About 10 percent

*Landscape:* Plains

*Landform:* Terraces

*Position on landform:* Tread

*Slope:* 0 to 2 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Flooding hazard:* Rare

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have more than 18 percent clay content and thick, dark surface layers.

### Major Uses

Rangeland, wildlife habitat

## YaC—Yattle fine sandy loam, 1 to 6 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 135 to 155 days

*Note:* Located along drainageways of the redrocks area in the northeastern parts of the county.

### Map Unit Composition

Yattle and similar soils: 90 percent

Minor components: 10 percent

### Component Descriptions

#### Yattle soils

*Landscape:* Canyonlands

*Landform:* Fans

*Position on landform:* Rise

*Parent material:* Red sandy alluvium derived from sandstone

*Slope:* 1 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Depth class:* Very deep

*Drainage class:* Well drained

*Slowest permeability:* 2.0 to 6.0 in/hr (moderately rapid)

*Available water capacity:* About 8.9 inches (moderate)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* About 2 percent

*Salinity maximum:* About 8 mmhos/cm (slightly saline)

*Sodium adsorption ratio maximum:* About 8 (slightly sodic)

*Ecological site:* Sandy

*Potential native vegetation:* blue grama, prairie sandreed, sand bluestem, little bluestem, needleandthread, sand dropseed, sideoats grama, western wheatgrass, fourwing saltbush, sand sagebrush, sun sedge, American vetch, spreading buckwheat

*Land capability subclass (irrigated):* 4e

*Land capability subclass (nonirrigated):* 6e

#### Typical Profile:

A—0 to 4 inches; fine sandy loam

Bw1—4 to 28 inches; fine sandy loam

Bw2—28 to 33 inches; fine sandy loam

Bk1—33 to 43 inches; loam

Bk2—43 to 70 inches; fine sandy loam

### Minor Components

Rizozo and similar soils

*Composition:* About 5 percent

*Landscape:* Canyonlands

*Landform:* Scarps

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Ecological site:* Sandstone Breaks

*Distinguishing characteristics:* These soils are less than 20 inches to sandstone bedrock.

Kimera and similar soils

*Composition:* About 5 percent

*Landscape:* Plains

*Landform:* Hills, fans

*Position on landform:* Rise, side slope, head slope

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Drainage class:* Well drained

*Ecological site:* Loamy

*Distinguishing characteristics:* These soils have more than 18 percent clay content.

### Major Uses

Rangeland, wildlife habitat

## ZR—Rizozo-Rock outcrop complex, 3 to 20 percent slopes

### Map Unit Setting

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 51 to 54 degrees F. (10.5 to 12.0 degrees C.)

*Frost-free period:* 135 to 155 days

*Note:* Located in the canyonlands area in the northeastern parts of the county.

### Map Unit Composition

Rizozo and similar soils: 75 percent

Rock outcrop: 15 percent

Minor components: 10 percent

### Component Descriptions

#### Rizozo soils

*Landscape:* Canyonlands

*Landform:* Scarps, mesas

*Parent material:* Slope alluvium and residuum weathered from sandstone and siltstone

*Slope:* 3 to 20 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 30 percent subangular gravel

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.0 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandstone Breaks

*Potential native vegetation:* sideoats grama, blue grama, little bluestem, big bluestem, black grama, needleandthread, prairie sandreed, sand dropseed, western wheatgrass, mountain mahogany, skunkbush sumac, yellow Indiagrass, oneseed juniper, twoneedle pinyon

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A—0 to 3 inches; channery very fine sandy loam

C—3 to 8 inches; channery very fine sandy loam

R—8 to 60 inches; bedrock

### **Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed red sandstone.

*Landscape:* Canyonlands

*Landform:* Scarps

*Parent material:* Sandstone

*Slope:* 3 to 20 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

### **Minor Components**

Yattle and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 3 to 6 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils are greater than 60 inches deep to bedrock.

### **Major Uses**

Rangeland, wildlife habitat



## **ZRF—Rizozo-Rock outcrop complex, 20 to 50 percent slopes**

### **Map Unit Setting**

*Major Land Resource Area:* 69

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 51 to 54 degrees F. (10.5 to 12.0 degrees C.)

*Frost-free period:* 135 to 155 days

*Note:* Located in the canyonlands area in the northeastern parts of the county.

### **Map Unit Composition**

Rizozo and similar soils: 75 percent

Rock outcrop: 15 percent

Minor components: 10 percent

### **Component Descriptions**

#### **Rizozo soils**

*Landscape:* Canyonlands

*Landform:* Scarps, mesas

*Parent material:* Slope alluvium and residuum weathered from sandstone and siltstone

*Slope:* 20 to 30 percent

*Aspect:* All aspects

*Shape (down/across):* Convex/linear

*Surface fragments:* About 30 percent subangular gravel

*Depth class:* Very shallow and shallow

*Depth to restrictive feature:* 6 to 20 inches to bedrock, lithic

*Drainage class:* Well drained

*Slowest permeability:* 0.6 to 2.0 in/hr (moderate)

*Available water capacity:* About 1.0 inches (very low)

*Shrink-swell potential:* About 1.5 percent (low)

*Calcium carbonate maximum:* About 15 percent

*Gypsum maximum:* None

*Salinity maximum:* About 2 mmhos/cm (nonsaline)

*Sodium adsorption ratio maximum:* About 0 (nonsodic)

*Ecological site:* Sandstone Breaks

*Potential native vegetation:* sideoats grama, blue grama, little bluestem, big bluestem, black grama, needleandthread, prairie sandreed, sand dropseed, western wheatgrass, mountain mahogany, skunkbush sumac, yellow Indiangrass, oneseed juniper, twoneedle pinyon

*Land capability subclass (nonirrigated):* 7s

*Typical Profile:*

A—0 to 3 inches; channery very fine sandy loam

C—3 to 8 inches; channery very fine sandy loam

R—8 to 60 inches; bedrock

### **Rock outcrop**

*Description:* Rock outcrop consists of areas of exposed red sandstone.

*Landscape:* Canyonlands

*Landform:* Scarps

*Parent material:* Sandstone

*Slope:* 20 to 50 percent

*Aspect:* All aspects

*Depth to restrictive feature:* 0 inches to bedrock, lithic

*Land capability subclass (nonirrigated):* 8s

### **Minor Components**

Yattle and similar soils

*Composition:* About 10 percent

*Landscape:* Canyonlands

*Landform:* Fans

*Position on landform:* Rise

*Slope:* 3 to 7 percent

*Aspect:* All aspects

*Shape (down/across):* Linear/linear

*Drainage class:* Well drained

*Ecological site:* Sandy

*Distinguishing characteristics:* These soils are greater than 60 inches deep to bedrock.

### **Major Uses**

Rangeland, wildlife habitat



## Use and Management of the Soils

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This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

### Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

#### Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited*, *slightly limited*, *somewhat limited*, and *very limited*. The suitability ratings are expressed as *well suited*, *moderately well suited*, *poorly suited*, and *unsuited* or as *good*, *fair*, and *poor*.

#### Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact

on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

## **Crops and Pasture**

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed for each soil, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

About 1.0 percent of the survey area, or about 46,000 acres, is used for crops or as permanent pasture. About 36,000 acres is irrigated cropland and 10,000 acres is dryland cropland. Alfalfa hay is the primary irrigated crop with lesser amounts of grass hay, corn, oats, and barley. Corn is mainly harvested for silage. Nonirrigated cropland is dominantly winter wheat.

Irrigated cropland is mainly along the Purgatoire River from Weston to Hoehne. Additional cropland is found in the Model area. Surface water is used for irrigation, mainly from the Purgatoire River. Irrigation pipe and contour ditches are used to apply water.

All irrigated crops respond to fertilizer applications. Phosphorus and nitrogen are commonly applied to grass hay, corn, and oats. Phosphorus is commonly applied to alfalfa.

Most areas of irrigated cropland along the Purgatoire River are nearly level and not prone to water or wind erosion. Cropland in Model is on plains and exposed to wind erosion. Raku and Manzanst soils can develop a plowpan or compacted layer. Ripping to depths that normally exceed typical plow depths can help break up plowpans.

### **Yields per Acre**

The average yields per acre that can be expected of the principal crops under a high level of management are shown in Table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in Table 5.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in Table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

The *productivity index* is a relative rating of the capacity of a soil to produce a specific plant under a defined management system. The index is determined from yield data on a few benchmark soils and is used to calculate yields, the net returns from crops, land assessment values, and taxes and to perform risk analysis when land management decisions are made.

### **Land Capability Classification**

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit.

*Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

*Capability subclasses* are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage);

s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

*Capability units* are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of map units in this survey area is given in the section *Detailed Soil Map Units* and in the yields table (Table 5.)

### Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

Only 36,000 acres, or 1 percent of the total acres in the county, Meets the requirements for prime farmland. Scattered acres are throughout the county, but most are in the central and eastern part. All of this acreage is used for crops. Crops grown on this land are primarily alfalfa and corn.

About 800,000 acres in the survey area, or nearly 24 percent of the survey area would meet the requirements for prime farmland if an adequate and dependable supply of irrigation water were available.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in Table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. All map units in Las Animas County that are considered prime farmland are irrigated. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective



measures. The extent of each listed map unit is shown in Table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading *Detailed Soil Map Units*.

The map units that meet the requirements for prime farmland if irrigated are:

BaA	Baca silt loam, 0 to 3 percent slopes
BaC	Baca silt loam, 3 to 5 percent slopes, cool
BcA	Baca silt loam, 0 to 3 percent slopes, cool
BnA	Baca silty clay loam, 0 to 2 percent slopes
Bx	Boxcanyon silt loam, 0 to 3 percent slopes
CC	Chacuaco-Capulin loams, 1 to 4 percent slopes
CpA	Calemore clay loam, 0 to 2 percent slopes
CpB	Calemore silt loam, 0 to 3 percent slopes
CpC	Capulin loam, 1 to 6 percent slopes
FcB	Wapiti clay loam, 0 to 3 percent slopes
FcC	Fort loam, 3 to 5 percent slopes
FtC	Olneft loam, 1 to 6 percent slopes
HvA	Haversid silt loam, 0 to 3 percent slopes
Kw	Kandrix loam, 1 to 6 percent slopes
Lb	La Brier silty clay loam, 0 to 3 percent slopes
MaB	Mauricanyon loam, 0 to 3 percent slopes, warm
MaW	Mauricanyon clay loam, 0 to 2 percent slopes, wet
MnA	Manzanst silty clay loam, 0 to 1 percent slopes
MnB	Manzanst silty clay loam, 1 to 3 percent slopes
MoA	Mauricanyon loam, 0 to 2 percent slopes
MoB	Mauricanyon loam, 0 to 2 percent slopes, dry
MzA	Manzanola silty clay loam, 0 to 1 percent slopes
MzB	Manzanola silty clay loam, 1 to 4 percent slopes
Rc	Raku silt loam, 0 to 2 percent slopes
RcA	Raku silty clay loam, 0 to 1 percent slopes
TbA	Trementina silt loam, 0 to 2 percent slopes
TnA	Trementina silty clay loam, 0 to 2 percent slopes, cool
TnB	Trementina silt loam, 0 to 2 percent slopes, dry
To	Torreon silty loam, 1 to 4 percent slopes
Wa	Wapiti loam, 0 to 2 percent slopes
WC	Plughat-Villegreen complex, 1 to 4 percent slopes
WeB	Wiley silt loam, 0 to 3 percent slopes
WrB	Wilid silty clay loam, 1 to 3 percent slopes
WyB	Wilid silt loam, 0 to 3 percent slopes

## Rangeland of the Las Animas County Soil Survey Area

By Ben P. Berlinger, Rangeland Management Specialist, Natural Resources Conservation Service

*Rangeland* is defined as a kind of land on which the native vegetation consists of grasses, grass-like plants, forbs, and shrubs; and where routine management is accomplished through the application of ecological principles. In areas that have similar climate and topography, differences in the kind and amount of rangeland or forest understory vegetation are closely related to the kind of soil. Effective management is based upon understanding the relationship between the soils, the vegetation, and the water cycle.

Approximately 70 percent of Las Animas County is rangeland, classified as short-grass prairie, East slope foothills mixed mid-grasses and shrubs, and Rocky Mountain bunch-grass type. Cow-calf-yearling enterprises are the dominant type of ranching.

In the eastern part of the survey area, the ranches are intermingled with cropland. During the winter season the rangeland forage is commonly supplemented with a protein concentrate.

Table 7 shows, for each soil that supports vegetation suitable for grazing, the ecological site; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average composition (expressed as a percent by air-dry weight) of each species. An explanation of the column headings in Table 7 follows.

An *ecological site* is the product of all the environmental factors responsible for its development. It has characteristic soils that developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, which has developed over time; and a characteristic plant community (kind and amount of vegetation) known as the *historic climax plant community*. The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others.

The *plant community* on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the *Field Office Technical Guide*, which is available in local offices of the Natural Resources Conservation Service.

*Total production* is the amount of vegetation that can be expected to grow annually in a well-managed area that is supporting the historic climax plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

*Characteristic vegetation*, the grasses, forbs, and shrubs that make up most of the potential natural plant community on each soil, is listed by common name. Under rangeland composition, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

*Common trees* are those tree species that naturally occur on a soil. The potential productivity is expressed as *site index*. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. More detailed information regarding site index is available in the "*National Forestry Manual*," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

*Site index* is expressed in a different way for species of pinyon and juniper: for these tree species, site index is the basal area attained when trees in a stand average 5 inches in diameter (Howell, 1940).

In this survey area, site index was determined using a 50-year curve for white fir (Schumacher, 1926). A 100-year curve was used for Engelmann's spruce and subalpine fir (Alexander, 1967), and for ponderosa pine and Rocky Mountain Douglas-fir (Meyer, 1961). More detailed information regarding site index is available in the "*National Forestry Manual*," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Range management requires knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the historic climax plant community on a particular rangeland ecological site. The more closely the existing community resembles this potential community, the higher the range similarity index.

Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the *"National Range and Pasture Handbook,"* which is available in local offices of the Natural Resources Conservation Service.

An objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the historic climax plant community for that site. Such management generally results in the optimum production and diversity of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a rangeland similarity index somewhat below the potential meets grazing needs, provides appropriate wildlife habitat, and protects soil and water resources.

Rangeland management based on soil survey information and rangeland inventory data can improve similarity indices leading to increased forage production and improved rangeland health. This is achieved most economically by applying the tools of grazing, animal impact, and rest. This will benefit the four ecosystem foundation blocks: mineral cycle, water cycle, energy flow, and community succession. Therefore, prescribed grazing is the major management need. With prescribed grazing, the frequency and intensity of grazing, as well as the opportunity for plants to recover from grazing, are controlled so that the kinds and amounts of plants that make up the desired plant community are reestablished and maintained in a healthy condition. This benefits the many values associated with rangeland such as wildlife, watershed stability, recreation, and natural beauty.

Prescribed grazing and the application of a planned grazing system, improves the condition of an ecological site and enhances wildlife habitat. Deferment is the postponement of grazing during part or all of the growing season of key forage plants. Rotating deferment among several fields improves the entire rangeland unit. It allows the forage plants to grow to an adequate height before they are grazed and thus helps to replenish root food reserves and develop mature seed. Fencing, developing water areas, and distributing salt areas may be necessary to help achieve a more uniform distribution of grazing.

Range seeding may be necessary to improve seriously depleted rangeland. Sandy soils can be seeded by the rangeland interseeder method, which reduces the hazard of erosion. Loamy soils can be seeded most successfully by drilling the grass seed into a preparatory warm season stubble cover of sorghum or sudan. The best time for range seeding in this survey area is mid-November through mid-April. Brush management is effective where competing shrubs, such as sand sagebrush or one-seed juniper, have significantly increased in abundance. Prescribed grazing is mandatory following brush management to allow for improvement of the ecological conditions and to prevent the brush species from increasing. Consult the appropriate ecological site description for further information.

Ecological deterioration as a result of improper grazing management is described for the dominant ecological sites in Las Animas County.

Retrogression of the Loamy ecological site leads to a decrease in the relative abundance of plants such as western wheatgrass, green needlegrass, and fourwing saltbush with a corresponding increase in the amounts of blue grama, buffalograss, galleta, redthreawn, and sand dropseed. Continued mismanagement will result in these sites becoming dominated by a sod-bound condition of blue grama and

buffalograss with minor amounts of undesirable plants such as broom snakeweed and plains pricklypear cactus.

Retrogression of the Clayey Plains, Alkaline Plains, Shaley Plains, and Salt Flat ecological sites will result in a decrease in plants such as western wheatgrass, green needlegrass, alkali sacaton, and switchgrass. Important shrubs such as fourwing saltbrush and winterfat are very palatable and can be completely grazed out by continuous season-long grazing. The major plants that will increase in relative abundance are blue grama, buffalograss, redthreawn, sand dropseed, broom snakeweed and plains pricklypear. With continued deterioration blue grama and buffalograss will increase to a low producing sod-bound condition on the Clayey Plains site. Continued site degradation of the Shaley Plains and Salt Flat sites will result in these sites having large areas of bare soil with little vegetative cover.

Retrogression of the Sandy, Sands, and Sandy Bottomland ecological sites will result in an immediate decrease in the relative abundance of plants such as sand bluestem, prairie sandreed, needleandthread, switchgrass, yellow Indiangrass, little bluestem, sideoats grama, Bessey sandcherry, and leadplant amorphia. Sand dropseed, blue grama, sand sagebrush, blowout grass, and western ragweed are the principal increaser species. With further deterioration annual buckwheat, sand verbena, redthreawn, and other annual forbs along with the increaser species will dominate these sites. Blowout areas can readily start on the Sands site when it is in a deteriorated condition resulting in additional damage to the soil and plant resources.

Retrogression of the Salt Meadow, Saline Overflow, and Overflow ecological sites results in alkali sacaton, western wheatgrass, switchgrass, prairie cordgrass, big bluestem, and fourwing saltbush decreasing from the plant community. Inland saltgrass, baltic rush, foxtail barley, blue grama, and several forbs increase in relative abundance. Continued degradation of the Salt Meadow site results in low diversity, almost monoculture, stands of inland saltgrass. Continued ecological deterioration of the Plains Swale site will create a sod-bound condition of buffalograss and blue grama.

Retrogression of the Gravel Breaks and Sandstone Breaks ecological sites result in a decrease in the relative abundance of sideoats grama, little bluestem, needleandthread, Indian ricegrass, western wheatgrass, big bluestem, and switchgrass. Blue grama, hairy grama, galleta, and numerous forbs will increase in relative abundance. As retrogression proceeds, broom snakeweed, small soapweed, fringed sagebrush, bigelow sagebrush, redthreawn, and dropseed will dominate these sites.

Retrogression of the foothills sites will be indicated by a decrease in the relative amounts of desirable cool season plants such as green needlegrass, western wheatgrass, and Griffith wheatgrass, as well as desirable warm season plants such as big bluestem, prairie sandreed, prairie cordgrass, and fourwing saltbush. Blue grama, prairie junegrass, bottlebrush squirreltail, forbs and unpalatable shrubs will increase. With further degradation these sites will become dominated by low value plants such as sleepy grass, hairy goldaster, pinque, wormwood, broom snakeweed, Gambel oak, oneseed juniper, pinyon pine, and New Mexico locust. These sites will eventually become invaded by plants such as Kentucky bluegrass and cheatgrass.

Retrogression of the mountain sites will result in a decrease in the relative abundance of plants such as Parry oatgrass, Arizona fescue, mountain muhly, and western wheatgrass. Plants such as blue grama, prairie junegrass, elk sedge, and several of the forb and shrub species will initial increase. With severe degradation plants likely to increase or invade and become part of the plant community are sleepy grass, fringed sagebrush, Gambel oak, cheatgrass and Kentucky bluegrass.

Using soils information along with rangeland inventory data and the application of sound rangeland management principles will prevent the deterioration of ecological



sites. Prescribed grazing management will result in sustaining the many values derived from the rangeland resource.



**Figure 13.—The Shaley Plains ecological site, in an area of Shingle-Penrose complex, 2 to 15 percent slopes.**

### **Woodland Management and Productivity**

Woodland makes up about 25 percent of the survey area. Woodland sites include Pinyon-juniper, ponderosa pine, Rocky Mountain Douglas fir-white fir, and Engelmann spruce-subalpine fir.

Pinyon-juniper covers about 100,000 acres in the foothills or about 3 percent of the survey area. Elevations range from 6,000 to 8,000 feet and are restricted to south-facing slopes above 7,000 feet. Wood crops are used locally primarily for firewood and fence posts. Pinyon and juniper are found mainly in areas of Lorencito and Sarcillo soils.

The ponderosa pine woodland site makes up about 6 percent of the survey area or about 200,000 acres. Elevation ranges from 6,600 to 8,500 feet. Ponderosa pine is used for various wood products. Soils that support ponderosa pine are Dargol, Fuera, Gulnare, Allens Park, Fishers, Littlepine, Stout, Vamer, Wahatoya, and Tecolote.

The Douglas fir-white fir woodland site makes up about 1 percent of the survey area or about 41,000 acres. White fir is the fastest growing conifer in the county and has the highest site index. Elevation ranges from 7,800 to 9,600 feet. This woodland site is used for various wood products. Soils that support Douglas fir and whit fir are Allens Park and Wahatoya at lower elevations. Leadville, Graneros, Howlett, Mitotes, Nogurg, Tercio and Scandard soils support this woodland site at higher elevations.

The Engelmann spruce-subalpine fir woodland site makes up about 0.5 percent of the county or about 25,000 acres. Elevations range from 9,000 feet to 12,000 feet. This woodland site is used for important lumber products. Many areas were harvested from 1920 to 1960 in the Sangre De Cristo range. Soils that support Engelmann spruce and subalpine fir are Angostura, Leadville, Howlett, and Leighcan.

## Forestland Management and Productivity

In Table 8, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *volume* number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *volume*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

The first species listed under *common trees* for a soil is the indicator species for that soil. It generally is the most common species on the soil and is the one that determines the ordination class.

The species that is followed by an asterisk under *common trees* is the indicator species for that soil. It generally is the most common species on the soil and is the one that determines the ordination class.

## Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition. Table 9 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in Table 9 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens.

Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

## Recreation

The soils of the survey area are rated in Tables 10 and 11 according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily

overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in Tables 10 and 11 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

*Camp areas* require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas.

The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Picnic areas* are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Playgrounds* require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting



the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

*Paths and trails* for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

*Off-road motorcycle trails* require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

*Golf fairways* are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

## Hydric Soils

In this section hydric soils are defined and described, and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin, *etc.*, 1979; U.S. Army Corps of Engineers, 1987; and Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information is needed, such as information about the depth and duration of the water table. Thus, criteria which identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995; USDA/NRCS, 1996). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in *"Soil Taxonomy"* (USDA/SCS, 1975; USDA/NRCS, 2006) and in the *"Soil Survey Manual"* (USDA/SCS, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators that can be used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (USDA/NRCS, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater is determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described as deep as necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if one (or more) of the approved indicators is present.

This survey can be used to locate probable areas of hydric soils.

The following map units meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (*National Research Council, 1995; USDA/NRCS, 1996*). Hydric soils also are given in Table 12.

BwA	Bloom silty clay loam, 0 to 2 percent slopes
Co	Collegiate loam, 1 to 4 percent slopes
CwC	Hunchback Family clay, 2 to 5 percent slopes
DH	Davtone-Histic Cryaquolls complex, 2 to 5 percent slopes
EL	Ellicott-Las Animas complex, 0 to 2 percent slopes
FyB	Furia clay loam, 1 to 3 percent slopes
GmE	Aquic Dystrocryepts

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions of the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions of the landform.

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine if hydric soils occur and the location of the included hydric soils.

AvC	Aguilar silt loam, 2 to 5 percent slopes
BT	Barela-Raton complex, 1 to 8 percent slopes
Ct	Breece sandy loam, 5 to 15 percent slopes
Dt	Davtone loam, 5 to 20 percent slopes
Dv	Denver silt loam, 0 to 2 percent slopes
FuD	Bandarito clay loam, 3 to 9 percent slopes
FuE	Bandarito clay loam, 9 to 18 percent slopes
FW	Bandarito-Fishers complex, 5 to 20 percent slopes
GC	Gothic-Cucharas complex, 5 to 35 percent slopes
Hn	Hoehne fine sandy loam, 0 to 2 percent slopes
MaW	Mauricanyon loam, wet, 0 to 2 percent slopes
MnW	Manzanst silty clay loam, wet, 0 to 2 percent slopes
MoA	Mauricanyon loam, 0 to 2 percent slopes
RB	Raton-Barela complex, 3 to 15 percent slopes

## Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading *Soil Properties*.

*Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.*

*The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.*

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the *Glossary*.

### Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 13 and 14 show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building

site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Dwellings* are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Small commercial buildings* are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

*Local roads and streets* have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

*Shallow excavations* are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing.

Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

*Lawns and landscaping* require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

### Sanitary Facilities

Tables 15 and 16 show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

*Septic tank absorption fields* are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

*Sewage lagoons* are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability,



depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow

along the surface of the soils in the steeper areas and cause difficult seepage problems.

*Daily cover for landfill* is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

### Construction Materials

Tables 17 and 18 give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

*Sand and gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In Table 17, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good*, *fair*, or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good*, *fair*, or *poor* as potential sources of topsoil, reclamation material, and roadfill. The features that limit the soils as sources of these materials are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of topsoil, reclamation material, or roadfill. The lower the number, the greater the limitation.

*Topsoil* is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and



spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

*Reclamation material* is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

*Roadfill* is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

### **Water Management**

Table 19 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

*Pond reservoir areas* hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other

permeable material. Excessive slope can affect the storage capacity of the reservoir area.

*Embankments, dikes, and levees* are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

*Aquifer-fed excavated ponds* are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

*Drainage* is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, a cemented pan, or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

*Irrigation* is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

*Terraces and diversions* are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

*Grassed waterways* are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

# Soil Properties

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Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics. These results are reported in Tables 20 and 21.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

## Engineering Index Properties

Table 20 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Texture* is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the *Glossary*.

*Classification* of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in Table 20.

*Rock fragments* larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

*Percentage (of soil particles) passing designated sieves* is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

*Liquid limit* and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

### Engineering Index Test Data

Table 20 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are representative of the series described in the section *Soil Series and Their Morphology*. The soil samples were tested by the NSSC Soil Survey Laboratory.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are as follows:

- AASHTO classification—M 145 (AASHTO), D 3282 (ASTM)
- Unified classification—D 2487-00 (ASTM)
- Mechanical analysis—T 88 (AASHTO), D 422 (ASTM), D 2217 (ASTM)
- Liquid limit—T 89 (AASHTO), D 4318 (ASTM)
- Plasticity index—T 90 (AASHTO), D 4318 (ASTM)
- Moisture density—T 99 (AASHTO), D 698 (ASTM)
- Specific gravity—T 100 (AASHTO), D 854 (ASTM)
- California bearing ratio—T 193 (AASHTO), D 1883 (ASTM)
- Shrinkage—T 92 (AASHTO), D 427 (ASTM)

### Physical Properties

Table 21 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Particle size* is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as

classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

*Sand* as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In Table 21, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

*Silt* as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In Table 21, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

*Clay* as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In Table 21, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

*Moist bulk density* is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at  $1/3$ - or  $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

*Permeability* ( $K_{sat}$ ) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity ( $K_{sat}$ ). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

*Available water capacity* refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

*Linear extensibility* refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

*Organic matter* is the plant and animal residue in the soil at various stages of decomposition. In Table 21, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

*Erosion factors* are shown in Table 21 as the K factor ( $K_w$  and  $K_f$ ) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

*Erosion factor  $K_w$*  indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

*Erosion factor  $K_f$*  indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

*Erosion factor T* is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

*Wind erodibility groups* are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.



8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

*Wind erodibility index* is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

## Chemical Properties

Table 22 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

*Depth* to the upper and lower boundaries of each layer is indicated.

*Cation-exchange capacity* is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

*Effective cation-exchange capacity* refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

*Soil reaction* is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

*Calcium carbonate* equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

*Gypsum* is expressed as a percent, by weight, of hydrated calcium sulfates in the fraction of the soil less than 20 millimeters in size. Gypsum is partially soluble in water. Soils that have a high content of gypsum may collapse if the gypsum is removed by percolating water.

*Salinity* is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

*Sodium adsorption ratio* (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.



## Physical and Chemical Analyses of Selected Soils

The results of physical analysis of several typical pedons in the survey area are given in Table 21 and the results of chemical analysis in Table 22. The data are for soils sampled at carefully selected sites. Unless otherwise indicated, the pedons are typical of the series. They are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by the National Soil Survey Center (NSSC) Soil Survey Laboratory.

Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an oven-dry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods (USDA, 1996).

*Coarse materials*—(2-75 mm fraction) weight estimates of the percentages of all material less than 75 mm (3B1).

*Coarse materials*—(2-250 mm fraction) volume estimates of the percentages of all material greater than 2 mm (3B2).

*Sand*—(0.05-2.0 mm fraction) weight percentages of material less than 2 mm (3A1).

*Silt*—(0.002-0.05 mm fraction) pipette extraction, weight percentages of all material less than 2 mm (3A1).

*Clay*—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1).

*Carbonate clay*—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1d).

*Water retained*—pressure extraction, percentage of oven-dry weight of less than 2 mm material;  $\frac{1}{3}$ - or  $\frac{1}{10}$ -bar (4B1), 15 bars (4B2).

*Water-retention difference*—between  $\frac{1}{3}$ -bar and 15 bars for whole soil (4C1).

*Water-retention difference*—between  $\frac{1}{10}$ -bar and 15 bars for whole soil (4C2).

*Bulk density*—of less than 2 mm material, saran-coated clods field moist (4A1a),  $\frac{1}{3}$ -bar (4A1d), oven-dry (4A1h).

*Moist bulk density*—of less than 2 mm material, cores (4A3).

*Moist bulk density*—of less than 2 mm material, compliant cavity (4A5).

*Linear extensibility*—change in clod dimension based on whole soil (4D).

*Organic carbon*—wet combustion. Walkley-Black modified acid-dichromate, ferric sulfate titration (6A1c).

*Organic carbon*—dry combustion (6A2d).

*Total nitrogen*—Kjeldahl (6B3).

*Extractable cations*—ammonium acetate pH 7.0, ICP; calcium (6N2i), magnesium (6O2h), sodium (6P2f), potassium (6Q2f).

*Extractable cations*—ammonium acetate pH 7.0, EDTA-alcohol separation; calcium (6N2a), magnesium (6O2a); flame photometry; sodium (6P2a), potassium (6Q2a).

*Extractable acidity*—barium chloride-triethanolamine IV (6H5a).

*Cation-exchange capacity*—ammonium acetate, pH 7.0, steam distillation (5A8b).

*Cation-exchange capacity*—sum of cations (5A3a).

*Effective cation-exchange capacity*—sum of extractable cations plus aluminum (5A3b).

*Base saturation*—ammonium acetate, pH 7.0 (5C1).

*Base saturation*—sum of cations, TEA, pH 8.2 (5C3).

*Reaction (pH)*—1:1 water dilution (8C1f).

*Reaction (pH)*—saturated paste (8C1b).

*Reaction (pH)*—potassium chloride (8C1g).

*Reaction (pH)*—sodium fluoride (8C1d).

*Reaction (pH)*—calcium chloride (8C1f).

*Aluminum*—potassium chloride extraction (6G9c).

*Aluminum*—acid oxalate extraction (6G12b).

*Iron*—acid oxalate extraction (6C9b).

*Silica*—acid oxalate extraction (6V2b).

*Sesquioxides*—dithionate-citrate extract; iron (6C2h), aluminum (6G7b), manganese (6D2g).

*Soil resistivity*—saturated paste (8E1).

*Total soluble salts*—estimate from resistivity (8A2).

*Total soluble salts*—estimate from conductivity (8D5).

*Carbonate as calcium carbonate*—(fraction less than 2 mm [80 mesh]) manometric (6E1h).

*Carbonate as calcium carbonate*—(fraction less than 20 mm) manometric (6E4).

*Gypsum*—precipitation in acetone (6F1a).

*Soluble ions*—acid titration, saturated paste; carbonate (6I1b), bicarbonate (6J1b).

*Soluble ions*—anion chromatograph, saturated paste; chloride (6K1f), sulfate (6L1f), nitrate (6M1f); fluoride (6U1d); nitrite (6W1d).

*Electrical conductivity*—saturation extract (8A3a).

*Sodium adsorption ratio* (5E).

*Extractable phosphorus*—Bray P-1 (6S3).

*Available phosphorus*—(method of reporting laboratory).

## Soil Features

Table 23 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

*Subsidence* is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

*Potential for frost action* is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

*Risk of corrosion* pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

## Water Features

Table 24 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in Table 24 indicate the portion of the year in which the feature is most likely to be a concern.

*Water table* refers to a saturated zone in the soil. Table 24 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

*Ponding* is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 24 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

*Flooding* is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

*Duration* and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

## Classification of the Soils

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The system of soil classification used by the National Cooperative Soil Survey has six categories (USDA, 1975). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 25 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

**ORDER.** Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

**SUBORDER.** Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Ustalf (*Ust*, meaning burnt, (implying dryness) plus *alf*, from Alfisol).

**GREAT GROUP.** Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapluustalfs (*Hapl*, meaning minimal horizonation, plus *ustalf*, the suborder of the Alfisols that has a udic moisture regime).

**SUBGROUP.** Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Haplustalfs.

**FAMILY.** Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle size, mineral content, soil temperature regime, soil depth, and reaction. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, superactive, frigid Typic Haplustalfs.

**SERIES.** The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

### Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows

standards in the “Soil Survey Manual” (USDA, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (USDA, 1975) and in “Keys to Soil Taxonomy” (USDA, 1992). Unless otherwise indicated, colors in the descriptions are for dry soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section *Detailed Soil Map Units*.

## Acantilado Series

*Map unit(s):* AcC

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fans

*Position on landform:* rise

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Slope:* 2 to 7 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.5 degrees C.)

*Frost-free period:* 135 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Calcic Haplustalfs

### Typical Pedon

*Map unit in which located:* Acantilado loam, 2 to 7 percent slopes

*Location in survey area:* Acantilado loam; in an area of Acantilado loam, 2 to 7 percent slopes; in rangeland; about 550 feet east and 400 feet south of the northwest corner of section 16, T. 35 S., R. 54 W.; USGS Travesser Park topographic quadrangle; 37 degrees, 0 minutes, 11.50 seconds north latitude; and 103 degrees, 28 minutes, 40.60 seconds west longitude; UTM 635,424 meters E., 4,096,305 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 2 percent subangular sandstone cobbles

A—0 to 4 inches; red (2.5YR 5/6) loam, dark reddish brown (2.5YR 3/4) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; many fine roots and common very fine roots; 6 percent gravel; violently effervescent (4 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); clear smooth boundary.

Bw—4 to 15 inches; reddish brown (2.5YR 5/4) silt loam, dark reddish brown (2.5YR 3/4) moist; moderate medium subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; common very fine roots; 1 percent medium distinct irregular carbonate masses throughout; 3 percent gravel; violently effervescent (10 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt smooth boundary.

Btk1—15 to 28 inches; light reddish brown (5YR 6/4) silt loam, reddish brown (5YR 4/4) moist; weak medium prismatic structure parting to moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common very fine roots; 30 percent distinct clay films on vertical faces of peds; 9 percent medium distinct irregular carbonate masses throughout; 2 percent



gravel; violently effervescent (20 percent calcium carbonate equivalent); moderately alkaline (pH 8.3); abrupt smooth boundary.

Btk2—28 to 39 inches; light red (2.5YR 6/6) silt loam, red (2.5YR 5/6) moist; weak medium prismatic structure parting to moderate medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few very fine roots; 25 percent distinct clay films on vertical faces of peds; 2 percent medium distinct irregular carbonate masses throughout; violently effervescent (25 percent calcium carbonate equivalent); moderately alkaline (pH 8.3); clear smooth boundary.

Btk3—39 to 58 inches; red (2.5YR 5/6) silt loam, red (2.5YR 4/6) moist; weak medium prismatic structure parting to moderate medium subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; few very fine roots; 20 percent distinct clay films on surfaces along root channels; 3 percent medium distinct irregular carbonate masses throughout; violently effervescent (20 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.

Btk4—58 to 62 inches; light reddish brown (2.5YR 6/4) silt loam, reddish brown (2.5YR 4/4) moist; weak fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 15 percent faint clay bridges on surfaces along pores; 15 percent medium distinct irregular carbonate masses throughout; violently effervescent (27 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt smooth boundary.

Bck—62 to 70 inches; red (2.5YR 5/6) silt loam, red (2.5YR 4/6) moist; weak fine subangular blocky structure; friable, soft, slightly sticky and slightly plastic; 3 percent fine distinct irregular carbonate masses throughout; violently effervescent (13 percent calcium carbonate equivalent); strongly alkaline (pH 8.5).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 52 to 54 degrees F.

*Mean summer soil temperature:* 70 to 76 degrees F.

*Depth to diagnostic features:* 8 to 16 inches to the argillic horizon; 8 to 16 inches to the calcic horizon; 3 to 5 inches to the cambic horizon; 0 inches to the ochric epipedon

*Depth to the base of the argillic horizon:* 30 to 65 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 3 to 30 percent, with less than 15 percent fine and coarser sand

*Rock fragment content:* 0 to 15 percent

#### *A horizon(s):*

*Hue:* 2.5YR to 7.5YR

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 to 6

*Clay content:* 15 to 25 percent

*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 6 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 12.5 to 20.8 meq/100 grams

Bw horizon(s):

*Hue:* 2.5YR or 5YR  
*Value:* 4 to 6 dry, 3 to 5 moist  
*Chroma:* 4 to 6  
*Texture:* loam, silt loam  
*Clay content:* 15 to 25 percent  
*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 2 to 15 percent  
*Reaction:* slightly alkaline or moderately alkaline (pH 7.4 to 8.4)  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 12.5 to 20.3 meq/100 grams

Btk horizon(s):

*Hue:* 10R to 5YR  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 3 to 6  
*Texture:* silt loam, silty clay loam  
*Clay content:* 20 to 35 percent  
*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 15 to 35 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

BCK horizon(s):

*Hue:* 10R to 5YR  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 4 to 6  
*Texture:* silt loam, loam  
*Clay content:* 15 to 27 percent  
*Rock fragment content:* 0 to 5 percent fine gravel  
*Calcium carbonate equivalent:* 3 to 15 percent  
*Gypsum content:* 0 to 2 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 10.9 to 21.2 meq/100 grams

## **Aguilar Series**

*Map unit(s):* AV  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* .001 to .06 in./hr. (very slow)  
*Landform:* terraces  
*Position on landform:* tread, rise  
*Parent material:* clayey alluvium  
*Elevation:* 5,000 to 6,100 feet (1,524 to 1,860 meters)

*Slope:* 0 to 5 percent

*Climatic data:*

*Mean annual precipitation:* 13 to 15 inches (331 to 381 millimeters)

*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Vertic Natrargids

**Typical Pedon**

*Map unit in which located:* Aguilar-Beckton complex, 0 to 2 percent slopes

*Location in survey area:* Aguilar fine sandy loam; in an area of Aguilar-Beckton complex, 0 to 2 percent slopes; about 400 feet east and 1,400 feet south of the northwest corner of section 27, T. 30 S., R. 64 W.; USGS The Hogback topographic quadrangle; 37 degrees, 24 minutes, 27.00 seconds north latitude; and 104 degrees, 33 minutes, 18.00 seconds west longitude; UTM 539,384 meters E., 4,140,184 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- E—0 to 4 inches; pale brown (10YR 6/3) fine sandy loam, dark grayish brown (10YR 4/2) moist; 56 percent sand; weak fine granular structure; very friable, slightly hard, nonsticky and nonplastic; many fine and medium roots; noneffervescent; strongly alkaline (pH 8.6); abrupt wavy boundary.
- Btn1—4 to 10 inches; brown (10YR 5/3) clay, brown (10YR 4/3) moist; moderate medium columnar structure parting to strong fine angular blocky structure; very firm, very hard, moderately sticky and moderately plastic; many very fine to medium roots; 45 percent continuous distinct clay films on all faces of peds; 1 percent fine threadlike carbonate threads; noneffervescent; strongly alkaline (pH 8.8); clear smooth boundary.
- Btn2—10 to 14 inches; brown (10YR 5/3) silty clay, brown (10YR 4/3) moist; moderate coarse columnar structure parting to strong medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine and fine roots; 40 percent distinct clay films on all faces of peds; slightly effervescent (1 percent calcium carbonate equivalent); strongly alkaline (pH 8.8); clear smooth boundary.
- Btny—14 to 23 inches; brown (10YR 5/3) clay, brown (10YR 5/3) moist; moderate medium columnar structure parting to strong medium angular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine and fine roots; 35 percent distinct clay films on all faces of peds; 10 percent medium threadlike carbonate threads; strongly effervescent (3 percent calcium carbonate equivalent); strongly alkaline (pH 8.8); clear smooth boundary.
- Btkny—23 to 29 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; few very fine roots; 25 percent distinct clay films on all faces of peds; 25 percent coarse threadlike carbonate threads and 25 percent coarse spherical salt masses; violently effervescent (3 percent calcium carbonate equivalent); strongly alkaline (pH 8.6); clear smooth boundary.
- Bkny—29 to 45 inches; grayish brown (10YR 5/2) silty clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; 10 percent medium carbonate threads; violently effervescent (3 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); gradual smooth boundary.
- Bny—45 to 60 inches; grayish brown (10YR 5/2) silty clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; firm, very hard, moderately

sticky and moderately plastic; common medium salt and gypsum threads; violently effervescent (2 percent calcium carbonate equivalent); moderately alkaline (pH 8.2).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from May through August

*Mean annual soil temperature:* 50 to 54 degrees F.

*Mean summer soil temperature:* 68 to 74 degrees F.

*Depth to restrictive feature:* 2 to 6 inches to the natric horizon

*Depth to diagnostic features:* 10 to 20 inches to gypsum accumulations; 2 to 6 inches to the natric horizon; 0 inches to the ochric epipedon

*Thickness of the natric horizon:* 22 to 44 inches

*Linear extensibility:* greater than 6.0 cm from 0 to 40 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 40 to 50 percent

*Sand content:* 15 to 30 percent, dominantly very fine sand

*Rock fragment content:* 0 to 5 percent

#### *E horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 2 or 3

*Texture:* silt loam, fine sandy loam

*Clay content:* 10 to 25 percent

*Rock fragment content:* 0 to 5 percent gravel

*Calcium carbonate equivalent:* 0 to 1 percent

*Electrical conductivity:* 0 to 16 mmhos/cm

*Sodium adsorption ratio:* 1 to 8

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 6.2 to 21.5 meq/100 grams

#### *Btn horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* silty clay, clay, silty clay loam

*Clay content:* 35 to 55 percent

*Rock fragment content:* 0 to 5 percent gravel

*Calcium carbonate equivalent:* 0 to 5 percent

*Gypsum content:* 0 to 1 percent

*Electrical conductivity:* 8 to 16 mmhos/cm

*Sodium adsorption ratio:* 15 to 35

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 18.2 to 42.4 meq/100 grams

#### *Btny and Btkny horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* clay loam, clay, silty clay

*Clay content:* 35 to 55 percent  
*Rock fragment content:* 0 to 5 percent gravel  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Gypsum content:* 1 to 5 percent  
*Electrical conductivity:* 8 to 16 mmhos/cm  
*Sodium adsorption ratio:* 15 to 35  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 6.0 to 26.8 meq/100 grams

**BCny horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 5 to 7 dry; 4 to 6 moist  
*Chroma:* 2 to 6  
*Texture:* silty clay loam, clay, clay loam  
*Clay content:* 27 to 45 percent  
*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Gypsum content:* 1 to 5 percent  
*Electrical conductivity:* 4 to 16 mmhos/cm  
*Sodium adsorption ratio:* 15 to 35  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 4.8 to 22.6 meq/100 grams

**Bny horizon(s):**

*Hue:* 10YR or 7.5YR  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 2 to 6  
*Texture:* silty clay loam, clay, clay loam  
*Clay content:* 27 to 45 percent  
*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Gypsum content:* 1 to 5 percent  
*Electrical conductivity:* 4 to 16 mmhos/cm  
*Sodium adsorption ratio:* 5 to 25  
*Reaction:* pH 7.9 to 9.0  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 4.8 to 22.6 meq/100 grams

## **Allens Park Series**

*Map unit(s):* GA, GR  
*Depth class:* moderately deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* hills  
*Position on landform:* base slope, side slope  
*Parent material:* slope alluvium and residuum weathered from sandstone  
*Elevation:* 7,000 to 8,800 feet (2,134 to 2,591 meters)  
*Slope:* 5 to 50 percent

*Climatic data:**Mean annual precipitation:* 18 to 24 inches (457 to 559 millimeters)*Mean annual air temperature:* 42 to 45 degrees F. (6.0 to 7.0 degrees C.)*Frost-free period:* 70 to 100 days*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Typic Haplustalfs**Typical Pedon***Map unit in which located:* Gulnare-Allens Park complex, 5 to 35 percent slopes*Location in survey area:* Allens Park sandy loam; in an area of Gulnare-Allens Park complex, 5 to 35 percent slopes; in forest land; about 200 feet east and 150 feet north of the southwest corner of section 35, T. 32 S., R. 67 W.; USGS Weston topographic quadrangle; 37 degrees, 12 minutes, 30.00 seconds north latitude; and 104 degrees, 52 minutes, 3.00 seconds west longitude; UTM 511,756 meters E., 4,118,001 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)*Surface fragments:* about 1 percent stones

E—0 to 5 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine granular structure; very friable, slightly hard, nonsticky and nonplastic; common fine to coarse roots; 1 percent cobbles and 5 percent gravel; neutral (pH 7.0); clear smooth boundary.

B/E—5 to 10 inches; brown (7.5YR 5/4) and pale brown (10YR 6/3) sandy loam, brown (7.5YR 4/4) and brown (10YR 4/3) moist; weak fine subangular blocky structure; friable, slightly hard, nonsticky and nonplastic; common fine to coarse roots; 5 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

Bt1—10 to 16 inches; brown (7.5YR 5/4) sandy clay loam, strong brown (7.5YR 4/6) moist; moderate medium subangular blocky structure; firm, extremely hard, moderately sticky and moderately plastic; few coarse roots; 45 percent distinct clay films on faces of peds; 5 percent gravel; slightly acid (pH 6.2); clear smooth boundary.

Bt2—16 to 20 inches; strong brown (7.5YR 5/6) sandy clay loam, strong brown (7.5YR 4/6) moist; weak fine and medium subangular blocky structure; firm, extremely hard, moderately sticky and moderately plastic; few coarse roots; 45 percent distinct clay films on faces of peds; 10 percent gravel; slightly acid (pH 6.2); abrupt wavy boundary.

BC—20 to 26 inches; reddish yellow (7.5YR 6/6) sandy clay loam, strong brown (7.5YR 4/6) moist; massive; firm, hard, slightly sticky and slightly plastic; few coarse roots; 15 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

C—26 to 28 inches; weathered bedrock; weakly cemented; soft decomposed sandstone; abrupt wavy boundary.

R—28 to 60 inches; unweathered bedrock; indurated; hard Poison Canyon sandstone.

**Range in Characteristics***Soil moisture:**Soil moisture regime subclass:* typic*Soil moisture regime class:* ustic*Seasonal pattern:* moist from March through June, intermittently moist from July through September*Mean annual soil temperature:* 43 to 46 degrees F.*Mean summer soil temperature:* 48 to 58 degrees F.*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)



*Depth to diagnostic features:* 20 to 40 inches to lithic contact; 0 inches to albic materials; 8 to 12 inches to the argillic horizon

*Thickness of the argillic horizon:* 8 to 25 inches

*Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Sand content:* 45 to 70 percent, with more than 35 percent fine sand and coarser

*Rock fragment content:* 5 to 15 percent

E horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 6 or 7 dry; 4 to 6 moist

*Chroma:* 2 to 4

*Clay content:* 5 to 20 percent

*Rock fragment content:* 0 to 9 percent medium and coarse gravel, 1 to 5 percent cobbles, and 0 to 1 percent stones

*Reaction:* slightly acid to neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 4.6 to 16.6 meq/100 grams

B/E horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 or 7 dry, 4 to 6 moist (E); 5 or 6 dry, 4 or 5 moist (B)

*Chroma:* 2 to 6

*Clay content:* 10 to 20 percent

*Rock fragment content:* 0 to 11 percent fine gravel, 0 to 9 percent medium and coarse gravel, and 0 to 6 percent cobbles

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 16.6 meq/100 grams

Bt horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 2 to 6

*Texture:* sandy clay loam

*Clay content:* 20 to 35 percent

*Sand content:* 45 to 70 percent

*Rock fragment content:* 0 to 6 percent fine gravel, 0 to 8 percent medium and coarse gravel, and 0 to 1 percent cobbles

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

BC horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry; 4 to 6 moist

*Chroma:* 3 to 6

*Texture:* sandy clay loam, gravelly sandy clay loam

*Clay content:* 20 to 30 percent

*Rock fragment content:* 0 to 26 percent fine gravel, 0 to 23 percent medium and coarse gravel, and 0 to 6 percent cobbles

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams



## Almagre Series

*Map unit(s):* WV

*Depth class:* deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* plains, interfluvium

*Position on landform:* rise

*Parent material:* loess over residuum derived from sandstone

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Slope:* 1 to 4 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine-silty, mixed, active, mesic Ustic Haplargids

### Typical Pedon

*Map unit in which located:* Almagre-Villedry complex, 1 to 4 percent slopes

*Location in survey area:* Almagre silt loam; in an area of Almagre-Villedry complex, 1 to 4 percent slopes; in rangeland; about 700 feet east and 2,500 feet north of the southwest corner of section 34, T. 27 S., R. 61 W.; USGS Jones Lake Spring topographic quadrangle; 37 degrees, 39 minutes, 3.60 seconds north latitude; and 104 degrees, 13 minutes, 16.40 seconds west longitude; UTM 568,698 meters E., 4,167,378 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 5 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine and fine roots; noneffervescent; slightly alkaline (pH 7.8); clear smooth boundary.

BA—5 to 9 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; common very fine and fine roots; 10 percent faint clay films on all faces of peds; strongly effervescent, 5 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bt—9 to 23 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; friable, hard, moderately sticky and moderately plastic; common very fine and fine roots; 35 percent distinct clay films on all faces of peds; violently effervescent, 6 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear smooth boundary.

Btk—23 to 30 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few very fine roots; 35 percent distinct clay films on all faces of peds; 2 percent medium irregular carbonate masses throughout; 5 percent gravel; violently effervescent, 6 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bk1—30 to 40 inches; light yellowish brown (10YR 6/4) silt loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 8 percent medium distinct irregular carbonate masses throughout; 5 percent gravel; violently effervescent, 16 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bk2—40 to 50 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; massive; very friable, soft, slightly sticky and slightly plastic; 5 percent fine distinct irregular carbonate masses throughout; 10 percent gravel; violently effervescent, 32 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); abrupt irregular boundary.

R—50 to 60 inches; unweathered bedrock; indurated; hard Dakota sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 66 to 72 degrees F.

*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

*Depth to diagnostic features:* 26 to 39 inches to the calcic horizon; 40 to 60 inches to lithic contact; 7 to 11 inches to the argillic horizon; 0 inches to the ochric epipedon

*Thickness of the argillic horizon:* 19 to 28 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 25 to 35 percent

*Sand content:* 5 to 30 percent, with less than 15 percent fine sand and coarser

*Rock fragment content:* 5 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* silt loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 0 to 2 percent gravel

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 9.7 to 14.6 meq/100 grams

#### *BA horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* loam, silt loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 0 to 2 percent gravel

*Calcium carbonate equivalent:* 1 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 9.6 to 14.4 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* silt loam, silty clay loam

*Clay content:* 24 to 35 percent

*Rock fragment content:* 0 to 2 percent gravel  
*Calcium carbonate equivalent:* 1 to 10 percent  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 12.7 to 18.6 meq/100 grams

**Btk horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 5 to 7 dry, 4 or 5 moist  
*Chroma:* 3 to 6  
*Texture:* clay loam, silty clay loam  
*Clay content:* 27 to 35 percent  
*Rock fragment content:* 0 to 10 percent fine gravel  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 14.3 to 18.6 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 6 to 8 dry, 4 to 6 moist  
*Chroma:* 3 or 6  
*Texture:* silt loam, silty clay loam, clay loam, loam, gravelly loam  
*Clay content:* 18 to 35 percent  
*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 15 to 40 percent  
*Gypsum content:* 0 to 2 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 9.1 to 14.3 meq/100 grams

## Angostura Series

*Map unit(s):* Gn  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* mountain slopes  
*Position on landform:* mountainflank  
*Parent material:* colluvium and till derived from granodiorite  
*Elevation:* 9,000 to 10,800 feet (2,743 to 3,292 meters)  
*Slope:* 20 to 65 percent  
*Climatic data:*  
*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)  
*Mean annual air temperature:* 37 to 40 degrees F. (3.0 to 4.5 degrees C.)  
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Typic Glossocryalfs

### Typical Pedon

*Map unit in which located:* Angostura very stony loam, 20 to 65 percent slopes  
*Location in survey area:* Angostura very stony loam; in an area of Angostura very stony loam, 20 to 65 percent slopes; in forest land; about 2 miles east of the

Costilla County line and south of the Whiskey Creek drainage; T. 32 S., R. 69 W.; USGS El Valle Creek topographic quadrangle; 37 degrees, 12 minutes, 31.20 seconds north latitude; and 105 degrees, 7 minutes, 48.30 seconds west longitude; UTM 488,457 meters E., 4,118,029.7 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 15 percent subrounded stones and 15 percent subrounded cobbles

- Oi—0 to 1 inch; slightly decomposed plant material; 10 percent cobbles, 10 percent stones, and 15 percent gravel; strongly acid (pH 5.2); abrupt smooth boundary.
- E—1 inch to 12 inches; pink (7.5YR 7/3) very stony loam, brown (7.5YR 4/3) moist; moderate fine granular structure; very friable, slightly hard, nonsticky and nonplastic; 10 percent cobbles, 11 percent stones, and 15 percent gravel; noneffervescent; moderately acid (pH 5.6); gradual smooth boundary.
- B/E—12 to 23 inches; 60 percent yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist, and 40 percent light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; 5 percent stones, 15 percent cobbles, and 20 percent gravel; noneffervescent; strongly acid (pH 5.4); gradual smooth boundary.
- Bt1—23 to 45 inches; yellowish brown (10YR 5/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; 35 percent distinct clay films on all faces of peds; 25 percent cobbles and 30 percent gravel; noneffervescent; slightly acid (pH 6.2); clear wavy boundary.
- Bt2—45 to 61 inches; brown (10YR 5/3) very cobbly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; firm, very hard, moderately



Figure 14.—A typical profile of Angostura very stony loam. These soils formed on mountain slopes from colluvium and till under Englemann spruce and subalpine fir.



sticky and moderately plastic; 45 percent distinct clay films on all faces of peds; 10 percent stones, 20 percent cobbles, and 29 percent gravel; noneffervescent; slightly acid (pH 6.5); clear wavy boundary.

BC—61 to 72 inches; grayish brown (10YR 5/2) very gravelly loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 10 percent cobbles, 8 percent stones, and 38 percent gravel; noneffervescent; neutral (pH 7.0).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* udic

*Seasonal pattern:* continuous throughout the year with peak periods in the spring and summer months

*Mean annual soil temperature:* 38 to 41 degrees F.

*Mean summer soil temperature:* 44 to 46 degrees F.

*Depth to diagnostic features:* 0 to 2 inches to the albic horizon; 10 to 23 inches to the glossic horizon; 18 to 24 inches to the argillic horizon

*Thickness of the argillic horizon:* 30 to 45 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Sand content:* 30 to 60 percent

*Rock fragment content:* 35 to 60 percent

#### E horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 or 7 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Clay content:* 10 to 20 percent

*Rock fragment content:* 5 to 5 percent fine gravel, 10 to 15 percent medium and coarse gravel, 10 to 20 percent cobbles, and 10 to 20 percent stones

*Reaction:* moderately acid or slightly acid

*Organic matter content:* 0.5 to 1.0 percent

*Base saturation:* 50 to 75 percent

*Cation-exchange capacity:* 8.6 to 16.6 meq/100 grams

#### B/E horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist (B part); 6 or 7 dry, 4 or 5 moist (E part)

*Chroma:* 2 or 3 (E); 3 to 6 (B)

*Clay content:* 15 to 25 percent

*Rock fragment content:* 5 to 5 percent fine gravel, 13 to 20 percent medium and coarse gravel, 15 to 25 percent cobbles, and 2 to 10 percent stones

*Reaction:* moderately acid or slightly acid (pH 5.1 to 7.3)

*Organic matter content:* 0.0 to 0.5 percent

*Base saturation:* 50 to 80 percent

*Cation-exchange capacity:* 10.9 to 19.7 meq/100 grams

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 14.2 to 23.3 meq/100 grams

#### Bt horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* very cobbly sandy clay loam, very cobbly clay loam

*Clay content:* 20 to 30 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, 15 to 25 percent cobbles, and 0 to 10 percent stones

*Reaction:* moderately acid or slightly acid

*Organic matter content:* 0.0 to 0.5 percent

*Base saturation:* 60 to 100 percent

*Cation-exchange capacity:* 14.2 to 23.3 meq/100 grams

BC horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Texture:* very gravelly loam, very gravelly sandy clay loam

*Clay content:* 20 to 30 percent

*Rock fragment content:* 8 to 10 percent fine gravel, 15 to 25 percent medium and coarse gravel, 7 to 10 percent cobbles, 5 to 15 percent stones

*Reaction:* slightly acid to slightly alkaline

## Apache Series

*Map unit(s):* AA, Ap

*Depth class:* shallow

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* lava flows, lava plateaus

*Parent material:* residuum weathered from basalt

*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)

*Slope:* 1 to 25 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 125 to 140 days

*Taxonomic class:* Loamy, mixed, superactive, mesic Lithic Haplustolls

### Typical Pedon

*Map unit in which located:* Apache cobbly loam, 5 to 25 percent slopes, stony

*Location in survey area:* Apache cobbly loam; in an area of Apache cobbly loam, 5 to 25 percent slopes, stony; in rangeland; about 110 feet north and 1,200 feet west of the southeast corner of section 18, T. 35 S., R. 59 W.; USGS Trinchera topographic quadrangle; 36 degrees, 59 minutes, 46.70 seconds north latitude; and 104 degrees, 3 minutes, 15.10 seconds west longitude; UTM 584,158 meters E., 4,094,880 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 15 percent gravel, 10 percent cobbles, and 5 percent stones

A—0 to 5 inches; grayish brown (10YR 5/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; friable, hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; 10 percent gravel and 15 percent cobbles; slightly effervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bw—5 to 9 inches; brown (10YR 4/3) cobbly clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure, and moderate fine subangular blocky structure; firm, very hard, slightly sticky and slightly plastic; many very fine and

fine roots throughout; 5 percent discontinuous faint clay films on faces of peds and in pores; 30 percent cobbles; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk—9 to 15 inches; pale brown (10YR 6/3) cobbly clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; firm, hard, slightly sticky and slightly plastic; common very fine and fine roots throughout; 3 percent fine irregular lime masses throughout; 10 percent gravel and 20 percent cobbles; violently effervescent; moderately alkaline (pH 8.0).

R—15 to 60 inches; unweathered bedrock; indurated; hard basalt.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 49 to 53 degrees F.

*Mean summer soil temperature:* 68 to 72 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 10 to 20 inches to lithic contact; 0 to 5 inches to secondary carbonates; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 7 to 20 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Rock fragment content:* 15 to 35 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 15 to 27 percent

*Rock fragment content:* 5 to 5 percent fine gravel, 5 to 10 percent medium and coarse gravel, 5 to 15 percent cobbles, and 0 to 5 percent stones

*Calcium carbonate equivalent:* 5 to 15 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 4.0 percent

*Cation-exchange capacity:* 12.8 to 23.0 meq/100 grams

#### *Bk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 to 7 dry, 3 to 5 moist

*Chroma:* 2 to 4

*Texture:* cobbly loam, cobbly clay loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 0 to 2 percent fine gravel, 0 to 3 percent medium and coarse gravel, 10 to 30 percent cobbles, and 0 to 10 percent stones

*Calcium carbonate equivalent:* 5 to 15 percent

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 16.2 to 28.2 meq/100 grams

## Aquic Dystrocrypts Taxon above family

*Map unit(s):* GmE

*Depth class:* very deep



*Drainage class:* poorly drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* cirques

*Position on landform:* mountaintop

*Parent material:* colluvium and till derived from monzonite

*Elevation:* 10,500 to 13,000 feet (3,200 to 3,962 meters)

*Slope:* 5 to 30 percent

*Climatic data:*

*Mean annual precipitation:* 30 to 36 inches (762 to 914 millimeters)

*Mean annual air temperature:* 30 to 36 degrees F. (-1.0 to 2.0 degrees C.)

*Frost-free period:* 30 to 45 days

*Taxonomic class:* Aquic Dystrocryepts

### Typical Pedon

*Map unit in which located:* Aquic Dystrocryepts

*Location in survey area:* Aquic dystrocryepts mucky loam; in an area of Aquic dystrocryepts; about 0.6 mile east of the Costilla County line on the Whiskey Creek drainage, T. 32 S., R. 69 W.; USGS El Valle Creek topographic quadrangle; 37 degrees, 13 minutes, 46.00 seconds north latitude; and 105 degrees, 8 minutes, 46.60 seconds west longitude; UTM 487,023 meters E., 4,120,315 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 20 percent gravel, 20 percent cobbles, and 1 percent stones

A1—0 to 11 inches; very dark grayish brown (10YR 3/2) cobbly mucky loam, very dark brown (10YR 2/2) moist; moderate very fine granular structure; very friable, soft, nonsticky and nonplastic; many fine to coarse roots throughout; 1 percent stones, 15 percent cobbles, and 10 percent gravel; very strongly acid (pH 4.5); clear wavy boundary.

A2—11 to 20 inches; brown (10YR 4/3) gravelly loam, very dark brown (10YR 2/2) moist; weak medium granular structure; very friable, slightly hard, nonsticky and nonplastic; many fine to coarse roots throughout; 25 percent gravel and 5 percent cobbles; very strongly acid (pH 4.6); clear wavy boundary.

Bw1—20 to 34 inches; brown (10YR 5/3) gravelly loam, dark grayish brown (10YR 4/2) moist; weak very fine subangular blocky structure; friable, slightly hard, nonsticky and nonplastic; many fine and medium roots throughout; 10 percent medium distinct dark yellowish brown (10YR 4/6) moist, masses of oxidized iron throughout; 20 percent gravel and 5 percent cobbles; very strongly acid (pH 5.0); thin ice layer at 30 inches; gradual wavy boundary.

Bw2—34 to 60 inches; brown (10YR 5/3) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak very fine subangular blocky structure; friable, slightly hard, nonsticky and nonplastic; common very fine and fine roots throughout; 50 percent gravel and 10 percent cobbles; strongly acid (pH 5.3).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aquic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist continuously with peak periods from March through September

*Mean annual soil temperature:* 32 to 37 degrees F.

*Depth to diagnostic features:* 18 to 24 inches to redox concentrations; 24 to 36 inches to aquic conditions; 0 inches to the umbric epipedon

*Thickness of the umbric epipedon:* 10 to 25 inches

*Seasonal high water table:* from June through September

*Depth to top:* 24 to 36 inches

*Particle-size control section (weighted average):*

*Clay content:* 10 to 20 percent

*Sand content:* 35 to 60 percent

*Rock fragment content:* 15 to 75 percent

A horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Texture:* gravelly sandy loam, very gravelly loam, gravelly loam, cobbly mucky loam

*Clay content:* 10 to 20 percent

*Rock fragment content:* 0 to 10 percent fine gravel, 5 to 11 percent medium and coarse gravel, 10 to 30 percent cobbles, and 0 to 25 percent stones

*Reaction:* very strongly acid or strongly acid

*Organic matter content:* 1.0 to 10.0 percent

*Base saturation:* 30 to 50 percent

Bw horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry; 3 or 4 moist

*Chroma:* 1 to 3

*Texture:* gravelly loam, very gravelly loam, gravelly sandy loam, very gravelly sandy loam

*Clay content:* 5 to 20 percent

*Rock fragment content:* 0 to 28 percent fine gravel, 9 to 37 percent medium and coarse gravel, 0 to 14 percent cobbles, and 0 to 6 percent stones

*Reaction:* very strongly acid or strongly acid

*Organic matter content:* 0.0 to 2.0 percent

*Base saturation:* 30 to 60 percent

## Aquic Haplustalfs

*Map unit(s):* MnW

*Local phase(s):*

*Depth class:* very deep

*Drainage class:* somewhat poorly drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* terraces, fans

*Position on landform:* rise, tread

*Parent material:* silty and clayey alluvium from irrigation water over clayey alluvium derived from sedimentary rock

*Elevation:* 5,500 to 6,000 feet (1,677 to 1,829 meters)

*Slope:* 0 to 3 percent

*Climatic data:*

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Aquic Haplustalfs

### Typical Pedon

*Map unit in which located:* Aquic Haplustalfs silty clay loam, 0 to 3 percent slopes

*Location in survey area:* Aquic Haplustalfs silty clay loam; in an area of Aquic Haplustalfs silty clay loam, 0 to 3 percent slopes; in cropland; about 1,200 feet west and 200 feet north of the southeast corner of section 9, T. 32 S., R. 62 W.; USGS Earl topographic quadrangle; 37 degrees, 15 minutes, 51.00 seconds north latitude; and 104 degrees, 20 minutes, 33.00 seconds west longitude; UTM 558,305 meters E., 4,124,372 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- Ap—0 to 3 inches; brown (10YR 5/3), silty clay loam, dark brown (10YR 3/3), moist; moderate fine and medium subangular blocky structure; firm, moderately hard, moderately sticky and moderately plastic; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Btk—3 to 8 inches; grayish brown (10YR 5/2) clay, dark grayish brown (10YR 4/2), moist; strong fine and medium subangular blocky structure; very firm, very hard, very sticky and very plastic; 34 percent faint clay films on all faces of peds; 4 percent medium distinct spherical carbonate masses in matrix and 3 percent medium distinct irregular carbonate masses throughout; very slightly effervescent; slightly alkaline (pH 7.7); clear smooth boundary.
- Btky—8 to 18 inches; yellowish brown (10YR 5/4), silty clay, dark yellowish brown (10YR 4/4), moist; moderate medium prismatic structure parting to strong fine and medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; 45 percent distinct clay films on all faces of peds; 5 percent fine and medium faint irregular strong brown (7.5YR 4/6), moist, masses of oxidized iron in matrix; 5 percent medium distinct irregular carbonate masses throughout and 3 percent medium distinct irregular gypsum masses on vertical faces of peds; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
- Btkg—18 to 30 inches; light yellowish brown (10YR 6/4), clay, brown (10YR 4/3), moist; moderate fine and medium subangular blocky structure; firm, moderately hard, moderately sticky and moderately plastic; 22 percent distinct clay films on all faces of peds; 12 percent fine and medium distinct irregular dark gray (10YR 4/1), moist, masses of reduced iron on vertical faces of peds; 5 percent fine and medium faint irregular carbonate masses throughout; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
- Bkg—30 to 36 inches; yellowish brown (10YR 5/4), clay loam, dark yellowish brown (10YR 4/4), moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 5 percent fine and medium faint irregular dark yellowish brown (10YR 4/6), moist, masses of oxidized iron in matrix and 8 percent fine and medium distinct irregular dark gray (10YR 4/1), moist; masses of reduced iron on vertical faces of peds; 2 percent fine and medium faint irregular carbonate masses throughout; very slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Cg—36 to 66 inches; pale brown (10YR 6/3), loam, brown (10YR 4/3), moist; massive; friable, slightly hard, slightly sticky and slightly plastic; 8 percent fine and medium distinct irregular dark gray (10YR 4/1), moist, masses of reduced iron in matrix; very slightly effervescent; slightly alkaline (pH 7.6).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aquic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through August, driest from November through February

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 68 to 72 degrees F.

*Depth to diagnostic features:* 0 inches to the ochric epipedon; 18 to 68 inches to redox depletions with chroma of 2 or less; 3 to 6 inches to the argillic horizon; 24 to 36 inches to endosaturation

*Thickness of the ochric epipedon:* 3 to 7 inches

*Thickness of the argillic horizon:* 17 to 33 inches

*Linear extensibility:* 5.0 to 9.0

*Seasonal high water table:* April through October

*Depth to top:* 24 to 36 inches

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 10 to 30 percent

*Rock fragment content:* 0 to 5 percent

Ap horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry; 3 or 4 moist

*Chroma:* 2 or 3 dry; 2 or 3 moist

*Texture:* silty clay loam

*Clay content:* 27 to 40 percent

*Carbonate clay content:* 0 to 4 percent

*Sand content:* 10 to 25 percent

*Rock fragment content:* 0 percent

*Calcium carbonate equivalent:* 0 to 5 percent

*Gypsum content:* 0 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* pH 7.4 to 8.4

*Organic matter content:* 1.0 to 2.0 percent

Btk horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry; 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* silty clay loam, silty clay, clay

*Clay content:* 35 to 50 percent

*Carbonate clay content:* 2 to 4.5 percent

*Sand content:* 10 to 30 percent

*Rock fragment content:* 0 percent

*Calcium carbonate equivalent:* 1 to 10 percent

*Gypsum content:* 0 to 1 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Sodium adsorption ratio:* 1 to 5

*Reaction:* pH 7.4 to 8.4

*Organic matter content:* 0.5 to 2.0 percent

Btky horizon(s)

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* silty clay loam, silty clay, clay

*Clay content:* 35 to 50 percent

*Carbonate clay content:* 2 to 4.5 percent  
*Sand content:* 5 to 25 percent  
*Silt content:* 25 to 60 percent  
*Rock fragment content:* 0 percent  
*Calcium carbonate equivalent:* 5 to 10 percent  
*Gypsum content:* 0 to 2 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* pH 7.4 to 8.4  
*Organic matter content:* 0.5 to 1.0 percent

Btkg horizon(s)

*Hue:* 7.5YR to 2.5Y  
*Value:* 5 or 6 dry; 4 or 5 moist  
*Chroma:* 2 to 4  
*Texture:* silty clay loam, clay loam, silty clay, clay  
*Clay content:* 35 to 50 percent  
*Carbonate clay content:* 2 to 4.5 percent  
*Sand content:* 5 to 30 percent  
*Silt content:* 20 to 60 percent  
*Rock fragment content:* 0 percent  
*Calcium carbonate equivalent:* 5 to 10 percent  
*Gypsum content:* 0 to 2 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 1 to 10  
*Reaction:* pH 7.4 to 8.4  
*Organic matter content:* 0.5 to 1.0 percent

Bkg horizon(s)

*Hue:* 7.5YR to 2.5Y  
*Value:* 5 or 6 dry; 4 or 5 moist  
*Chroma:* 2 to 4  
*Texture:* silty clay loam, clay loam, sandy clay loam  
*Clay content:* 27 to 35 percent  
*Carbonate clay content:* 1.5 to 4.5 percent  
*Sand content:* 15 to 50 percent  
*Rock fragment content:* 0 to 15 percent total: 0 to 10 percent indurated fine gravel  
and 0 to 5 percent indurated medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 15 percent  
*Gypsum content:* 0 to 3 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 1 to 10  
*Reaction:* pH 7.4 to 8.4  
*Organic matter content:* 0.0 to 0.5 percent

C horizon(s) 2Bk horizons in some pedons

*Hue:* 7.5YR to 2.5Y  
*Value:* 5 or 6 dry; 4 or 5 moist  
*Chroma:* 1 to 3  
*Texture:* fine sandy loam, loam, silt loam  
*Clay content:* 15 to 27 percent  
*Carbonate clay content:* 1 to 4 percent  
*Sand content:* 25 to 55 percent  
*Rock fragment content:* 0 to 15 percent total: 0 to 10 percent indurated fine gravel  
and 0 to 5 percent indurated medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 15 percent

*Gypsum content:* 0 to 3 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 1 to 10  
*Reaction:* pH 7.4 to 8.4  
*Base saturation:* Unspecified  
*Organic matter content:* 0.0 to 0.5 percent

## **Aridic Calciustolls Taxon above family**

*Map unit(s):* Us, AR  
*Local phase(s):* Unspecified  
*Depth class:* Moderately deep to very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* hills, hogbacks, lava plateaus  
*Position on landform:* side slope, head slope  
*Parent material:* colluvium over residuum weathered from sandstone and shale  
*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)  
*Slope:* 15 to 50 percent  
*Climatic data:*  
     *Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)  
     *Mean annual air temperature:* 48 to 54 degrees F. (9.0 to 12.0 degrees C.)  
     *Frost-free period:* 120 to 145 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Aridic Calciustolls

### **Typical Pedon**

*Map unit in which located:* Aridic Calciustolls, 15 to 35 percent slopes  
*Location in survey area:* Aridic calciustolls; in an area of Aridic calciustolls, 15 to 35 percent slopes; in shrub cover; about 700 feet east and 1,400 feet north of the southwest corner of section 6, T. 34 S., R. 56 W.; USGS Miners Peak topographic quadrangle; 37 degrees, 6 minutes, 27.40 seconds north latitude; and 103 degrees, 44 minutes, 17.00 seconds west longitude; UTM 612,125 meters E., 4,107,559 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* about 15 percent subrounded indurated medium and coarse gravel, 20 percent subrounded indurated cobbles, and 15 percent subrounded indurated stones  
 Oi—0 to 1 inch; slightly decomposed plant material; 1 percent clay; clear smooth boundary.  
 A—1 inch to 6 inches; very dark grayish brown (10YR 3/2), very stony loam, very dark brown (10YR 2/2), moist; moderate fine and medium granular structure; very friable, soft, slightly sticky and slightly plastic; many fine roots throughout and common medium roots; 10 percent gravel, 10 percent cobbles, and 20 percent stones; very slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.  
 Bw—6 to 14 inches; very dark grayish brown (10YR 3/2), very cobbly clay loam, very dark brown (10YR 2/2), moist; moderate fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots and common medium roots throughout; 30 percent discontinuous distinct organic stains on vertical faces of peds; 10 percent gravel, 15 percent stones, and 20 percent cobbles; strongly effervescent; moderately alkaline (pH 8.1); abrupt smooth boundary.



Bk1—14 to 19 inches; brown (7.5YR 5/2), cobbly clay loam, brown (7.5YR 4/2), moist; 30 percent clay; weak fine and medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common very fine to medium roots throughout; 15 percent cobbles and 15 percent gravel; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

2Bk2—19 to 42 inches; pinkish white (7.5YR 8/2), silt loam, pinkish gray (7.5YR 6/2), moist; 26 percent clay; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few very fine roots throughout; 3 percent fine and medium distinct irregular carbonate masses throughout; 5 percent gravel and 5 percent cobbles; violently effervescent; moderately alkaline (pH 8.4).

2Cr—42 to 60 inches; weathered bedrock; weakly cemented; soft shale and siltstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in the spring and early summer months, intermittently moist from June through August

*Mean summer soil temperature:* 70 to 74 degrees F.

*Mean annual soil temperature:* 50 to 54 degrees F.

*Depth to restrictive feature:* 20 to 71 inches to bedrock (paralithic)

*Depth to diagnostic features:* 12 to 20 inches to the calcic horizon; 20 to 60 inches to paralithic contact; 0 inches to the mollic epipedon

*Thickness of diagnostic features:* 10 to 30 inches to the calcic horizon; 7 to 20 inches to the mollic epipedon

*Surface fragments:* 10 to 25 percent subrounded indurated basalt cobbles and 5 to 15 percent subrounded indurated basalt stones

#### *Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 15 to 45 percent

*Rock fragment content:* 5 to 45 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry; 2 or 3 moist

*Chroma:* 2 or 3 dry or moist

*Texture:* very stony loam

*Clay content:* 20 to 27 percent

*Sand content:* 25 to 50 percent

*Rock fragment content:* 35 to 60 percent total: 5 to 5 percent subangular indurated basalt fine gravel, 5 to 10 percent subangular indurated basalt medium and coarse gravel, 10 to 15 percent subangular indurated basalt cobbles, and 15 to 25 percent subangular indurated basalt stones

*Calcium carbonate equivalent:* 0 to 2 percent

*Electrical conductivity:* 0 to 0 mmhos/cm

*Reaction:* pH 6.6 to 7.3

*Organic matter content:* 2.0 to 4.0 percent

*Cation-exchange capacity:* 17.0 to 23.0 meq/100 grams

#### *Bw horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry; 2 or 3 moist

*Chroma:* 2 or 3 dry or moist



*Texture:* very cobbly loam, very cobbly clay loam  
*Clay content:* 20 to 35 percent  
*Sand content:* 20 to 35 percent  
*Rock fragment content:* 35 to 60 percent total: 5 to 5 percent subangular indurated basalt fine gravel, 5 to 10 percent subangular indurated basalt medium and coarse gravel, 15 to 25 percent subangular indurated basalt cobbles, and 10 to 20 percent subangular indurated basalt stones  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Electrical conductivity:* 0 to 0 mmhos/cm  
*Reaction:* pH 7.4 to 8.4  
*Organic matter content:* 1.0 to 3.0 percent  
*Cation-exchange capacity:* 16.6 to 28.7 meq/100 grams

**Bk1 horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 5 or 6 dry; 4 or 5 moist  
*Chroma:* 2 to 4 dry or moist  
*Texture:* cobbly clay loam, cobbly sandy clay loam  
*Clay content:* 20 to 35 percent  
*Sand content:* 25 to 60 percent  
*Rock fragment content:* 15 to 35 percent total: 4 to 5 percent fine gravel, 5 to 10 percent medium and coarse gravel, 6 to 19 percent cobbles, and 0 to 1 percent stones  
*Calcium carbonate equivalent:* 15 to 35 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* pH 7.4 to 8.4  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 16.2 to 28.2 meq/100 grams

**Bk2 horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 6 to 8 dry; 5 to 7 moist  
*Chroma:* 2 to 4 dry or moist  
*Texture:* loam, silt loam  
*Clay content:* 20 to 27 percent  
*Sand content:* 15 to 50 percent  
*Rock fragment content:* 0 to 15 percent: 0 to 5 percent fine gravel, 0 to 5 percent medium and coarse gravel, and 0 to 5 percent cobbles  
*Calcium carbonate equivalent:* 15 to 50 percent  
*Gypsum content:* 0 to 2 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* pH 7.9 to 9.0  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 14.2 to 21.7 meq/100 grams

## Ascalon Series

*Map unit(s):* AsB, AnB  
*Local phase(s):* overblown  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* hills, plains, ridges

*Position on landform:* side slope, base slope, talf

*Parent material:* eolian deposits, eolian sands

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 0 to 3 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Aridic Argiustolls

### Typical Pedon

*Map unit in which located:* Ascalon sandy loam, 0 to 3 percent slopes

*Location in survey area:* Ascalon sandy loam; in an area of Ascalon sandy loam, 0 to 3 percent slopes; in cropland; about 1,000 feet east and 100 feet north of the southwest corner of section 34, T. 32 S., R. 51 W.; USGS Pintada Creek topographic quadrangle; 37 degrees, 17 minutes, 38.20 seconds north latitude; and 103 degrees, 8 minutes, 0.50 seconds west longitude; UTM 665,443 meters E., 4,129,115 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

Ap—0 to 3 inches; brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; loose, nonsticky and nonplastic; many very fine and fine roots; noneffervescent; neutral (pH 7.3); abrupt smooth boundary.

BA—3 to 7 inches; brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; noneffervescent; neutral (pH 7.3); clear smooth boundary.

Bt1—7 to 14 inches; brown (10YR 4/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; friable, extremely hard, moderately sticky and moderately plastic; many very fine and fine roots; 50 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 7.3); clear smooth boundary.

Bt2—14 to 23 inches; brown (10YR 4/3) sandy clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; friable, extremely hard, moderately sticky and moderately plastic; common very fine and fine roots; 50 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Bk1—23 to 30 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; friable, very hard, moderately sticky and moderately plastic; few very fine roots; 1 percent fine distinct spherical carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

Bk2—30 to 65 inches; very pale brown (10YR 7/4) loam, light yellowish brown (10YR 6/4) moist; massive; friable, hard, slightly sticky and slightly plastic; few very fine and fine roots; 4 percent fine distinct spherical carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through June and intermittently moist in July and August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 7 to 15 inches to the argillic horizon; 10 to 25 inches to secondary carbonates; 0 inches to the mollic epipedon

*Depth to the base of the argillic horizon:* 20 to 30 inches

*Thickness of the mollic epipedon:* 7 to 15 inches

*Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 45 to 70 percent

*Rock fragment content:* 0 to 5 percent

**A horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* loamy sand, sandy loam

*Clay content:* 3 to 15 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 3.0 to 13.4 meq/100 grams

**Bt horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Texture:* sandy clay loam

*Clay content:* 20 to 35 percent

*Sand content:* 50 to 75 percent

*Calcium carbonate equivalent:* 0 to 2 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 16.2 to 28.2 meq/100 grams

**Bk horizon(s):**

*Hue:* 10YR

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 3 to 6

*Texture:* sandy clay loam, loam, fine sandy loam, sandy loam

*Clay content:* 10 to 30 percent

*Calcium carbonate equivalent:* 5 to 10 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 7.6 to 27.5 meq/100 grams

## **Ayon Series**

*Map unit(s):* AA, AC, Us

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fan remnants, fans, hills, lava plateaus

*Position on landform:* rise

*Parent material:* alluvium and colluvium derived from basalt

*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)

*Slope:* 1 to 25 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 125 to 145 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, mesic Aridic Calciustolls

### Typical Pedon

*Map unit in which located:* Ayon-Apache complex, 1 to 9 percent slopes

*Location in survey area:* Ayon very cobbly loam; in an area of Ayon-Apache complex, 1 to 9 percent slopes; in rangeland; about 1,100 feet west and 1,700 feet south of the northeast corner of section 9, T. 35 S., R. 54 W.; USGS Jesus Canyon topographic quadrangle; 37 degrees, 0 minutes, 47.00 seconds north latitude; and 103 degrees, 27 minutes, 49.00 seconds west longitude; UTM 636,683 meters E., 4,097,445 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 20 percent basalt cobbles and stones

A—0 to 6 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark grayish brown (10YR 3/2) and very dark grayish brown (10YR 3/2) crushed, moist; moderate fine granular structure; very friable, soft, nonsticky and nonplastic; many fine roots throughout; 2 percent stones, 15 percent cobbles, and 20 percent gravel; slightly effervescent (2 percent calcium carbonate equivalent); slightly alkaline (pH 7.4); clear smooth boundary.

Bw—6 to 14 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark grayish brown (10YR 3/2) and very dark grayish brown (10YR 3/2) crushed, moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many fine roots throughout; 15 percent gravel and 25 percent cobbles; strongly effervescent (12 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); clear smooth boundary.

Bk1—14 to 19 inches; light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) and dark grayish brown (10YR 4/2) crushed, moist; massive; friable, slightly hard, nonsticky and nonplastic; common very fine and fine roots throughout; 30 percent gravel and 25 percent cobbles; violently effervescent (35 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt wavy boundary.

Bk2—19 to 65 inches; grayish brown (10YR 5/2) very cobbly loam, pale brown (10YR 6/3) and pale brown (10YR 6/3) crushed, moist; massive; friable, very hard, nonsticky and nonplastic; common very fine and fine roots throughout; 25 percent cobbles, 25 percent gravel, and 5 percent stones; violently effervescent (50 percent calcium carbonate equivalent); moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in April and May, and moist intermittently from June through August

*Mean annual soil temperature:* 50 to 54 degrees F.

*Mean summer soil temperature:* 68 to 74 degrees F.

*Depth to diagnostic features:* 10 to 30 inches to the calcic horizon; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 7 to 20 inches



*Particle-size control section (weighted average):*

*Clay content: 18 to 27 percent*

*Rock fragment content: 35 to 70 percent*

*A horizon(s):*

*Hue: 10YR or 2.5Y*

*Value: 4 or 5 dry, 2 or 3 moist*

*Chroma: 2 or 3*



**Figure 15.—A typical profile of Ayon very cobbly loam. These soils formed in alluvium on fan remnants. A distinct calcic horizon is evident below the surface layer.**

*Clay content:* 18 to 27 percent

*Rock fragment content:* 2 to 5 percent fine gravel, 8 to 15 percent medium and coarse gravel, 15 to 21 percent cobbles, and 10 to 19 percent stones

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 15.1 to 22.3 meq/100 grams

**Bw horizon(s):**

*Hue:* 10YR or 2.5Y

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* very cobbly loam, very gravelly loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 5 to 5 percent fine gravel, 10 to 20 percent medium and coarse gravel, 20 to 30 percent cobbles, and 0 to 5 percent stones

*Calcium carbonate equivalent:* 5 to 15 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 14.7 to 22.3 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 6 to 8 dry, 5 to 7 moist

*Chroma:* 2 to 4

*Texture :* very cobbly loam, very gravelly loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 8 to 20 percent fine gravel, 10 to 40 percent medium and coarse gravel, 10 to 20 percent cobbles, and 0 to 8 percent stones

*Calcium carbonate equivalent:* 15 to 45 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 2.0 percent

*Cation-exchange capacity:* 12.9 to 22.3 meq/100 grams

## **Baca Series**

*Map unit(s):* BaA, BaC, BcA

*Local phase(s):* cool

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* fans, plains, terraces

*Position on landform:* talf, rise, tread

*Parent material:* loess and alluvium derived from sandstone, siltstone, and shale

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Slope:* 0 to 5 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.7 degrees C.)

*Frost-free period:* 120 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Aridic Haplustalfs

### Typical Pedon

*Map unit in which located:* Baca silt loam, 0 to 3 percent slopes

*Location in survey area:* Baca silt loam; in an area of Baca silt loam, 0 to 3 percent slopes; in rangeland; about 2,200 feet east and 2,000 feet north of southwest corner of section 13, T. 32 S., R. 55 W.; USGS Tobe topographic quadrangle; 37 degrees, 15 minutes, 9.00 seconds north latitude; and 103 degrees, 31 minutes, 47.00 seconds west longitude; UTM 630,396 meters E., 4,123,921 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 3 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; friable, soft, nonsticky and nonplastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.2); clear smooth boundary.
- AB—3 to 6 inches; brown (10YR 5/3) silty clay loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few very fine to medium roots throughout; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- Bt1—6 to 13 inches; brown (10YR 5/3) silty clay, dark brown (10YR 3/3) and brown (10YR 4/3) crushed, moist; strong medium prismatic structure parting to strong medium angular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; few very fine to medium roots throughout; 30 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Bt2—13 to 21 inches; brown (10YR 5/3) silty clay, brown (10YR 4/3) moist; strong medium prismatic structure parting to strong medium angular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; few very fine and fine roots throughout; 30 percent distinct clay films on all faces of peds; strongly effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Btk—21 to 27 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few very fine roots in cracks; 20 percent faint clay films on all faces of peds; 1 percent medium distinct spherical carbonate masses throughout; violently effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Bk1—27 to 37 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; friable, hard, slightly sticky and slightly plastic; few very fine roots in cracks; 15 percent medium distinct spherical carbonate masses throughout; violently effervescent (9 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.
- Bk2—37 to 47 inches; brown (7.5YR 5/4) silty clay loam, brown (7.5YR 4/4) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; 1 percent fine distinct spherical carbonate masses throughout; violently effervescent (8 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); gradual wavy boundary.
- Bk3—47 to 83 inches; strong brown (7.5YR 5/6) silt loam, brown (7.5YR 5/4) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; 1 percent fine faint spherical carbonate masses throughout; violently effervescent (14 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); gradual wavy boundary.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)



*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 50 to 54 degrees F.

*Mean summer soil temperature:* 68 to 73 degrees F.

*Depth to diagnostic feature:* 4 to 7 inches to the argillic horizon

*Depth to the base of the argillic horizon:* 20 to 31 inches

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 25 percent, with less than 15 percent fine or coarser sand

*Rock fragment content:* 0 to 5 percent

A horizon(s):

*Hue:* 10YR or 2.5Y

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* silt loam

*Clay content:* 15 to 27 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 11.0 to 23.0 meq/100 grams

Bt horizon(s):

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 through 4

*Texture:* silty clay loam, clay, silty clay, clay loam

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 25 percent with less than 15 percent fine or coarser sand

*Calcium carbonate equivalent:* 0 to 5 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* neutral through moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 18.2 to 35.6 meq/100 grams

Btk horizon(s):

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 through 4

*Texture:* clay loam, silty clay loam, clay

*Clay content:* 35 to 45 percent

*Sand content:* 5 to 25 percent with less than 15 percent fine or coarser sand

*Calcium carbonate equivalent:* 0 to 5 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 18.2 to 35.6 meq/100 grams

Bk horizon(s):

*Hue:* 7.5YR through 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* silty clay loam, loam, silt loam

*Clay content:* 15 to 35 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Gypsum content:* 0 to 3 percent

*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 2.9 to 18.2 meq/100 grams

## Bacid Series

*Map unit(s):* BaB, BnA  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* plain, fan, terraces  
*Position on landform:* rise, treads  
*Parent material:* silty and clayey alluvium and/or loess  
*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)  
*Slope:* 0 to 5 percent  
*Climatic data:*  
     *Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
     *Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
     *Frost-free period:* 125 to 155 days  
*Taxonomic class:* Fine, smectitic, mesic Ustic Haplargids

### Typical Pedon

*Map unit in which located:* Bacid silt loam, 1 to 5 percent slopes  
*Location in survey area:* Bacid silt loam; in an area of Bacid silt loam, 1 to 5 percent slopes; about 1,900 feet north and 1,250 feet west of the southeast corner of section 25, T. 28 S., R. 54 W.; USGS Lost Canyon topographic quadrangle; 37 degrees, 35 minutes, 59.80 seconds north latitude; and 103 degrees, 17 minutes, 48.00 seconds west longitude; UTM 650,364 meters E., 4,162,794 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; friable, soft, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Bt1—5 to 13 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; many very fine and fine roots throughout; 45 percent prominent clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt2—13 to 20 inches; light brownish gray (10YR 6/2) silty clay loam, grayish brown (10YR 5/2) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; common very fine and fine roots throughout; 45 percent prominent clay films on all faces of peds; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btk—20 to 30 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 5/4) moist; weak medium prismatic structure parting to moderate medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; common very fine and fine roots throughout; 35 percent

distinct clay films on all faces of peds; 7 percent medium irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bk—30 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; common very fine and fine roots throughout; 2 percent fine and medium irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.4).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 4 to 10 inches to the argillic horizon; 10 to 20 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 16 to 38 inches

##### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 20 percent, with less than 15 percent fine or coarse sand

*Rock fragment content:* 0 to 5 percent

##### *A horizon(s):*

*Hue:* 10YR

*Value:* 4 through 6 dry, 3 through 5 moist

*Chroma:* 2 or 3

*Texture:* Silty clay loam, silt loam

*Clay content:* 15 to 35 percent

*Reaction:* Neutral or slightly alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 11.0 to 28.7 meq/100 grams

##### *Bt horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 through 4

*Texture:* silty clay, silty clay loam, clay

*Clay content:* 35 to 50 percent

*Calcium carbonate equivalent:* 0 to 5 percent

*Electrical conductivity:* 0 to 1 mmhos/cm

*Reaction:* neutral to moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 15.9 to 35.6 meq/100 grams

##### *Btk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 through 4

*Texture:* clay, silty clay loam, silty clay

*Clay content:* 35 to 50 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 18.2 to 31.0 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 6 or 7 dry, 4 to 6 moist  
*Chroma:* 3 or 4  
*Texture:* silt loam, loam, silty clay loam  
*Clay content:* 15 to 30 percent  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Gypsum content:* 0 to 3 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 2.9 to 15.9 meq/100 grams

## Bandarito Series

*Map unit(s):* FuD, FW, FuE  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* fan remnants, valley sides  
*Position on landform:* rise  
*Parent material:* alluvium derived from shale and siltstone  
*Elevation:* 7,000 to 8,800 feet (2,134 to 2,682 meters)  
*Slope:* 3 to 18 percent  
*Climatic data:*  
     *Mean annual precipitation:* 18 to 23 inches (457 to 584 millimeters)  
     *Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)  
     *Frost-free period:* 70 to 100 days

*Taxonomic class:* Fine, mixed, superactive, frigid Pachic Argiustolls

### Typical Pedon

*Map unit in which located:* Bandarito clay loam, 3 to 9 percent slopes  
*Location in survey area:* Bandarito clay loam; in an area of Bandarito clay loam, 3 to 9 percent slopes; in rangeland; an unsectionalized area about 1,500 feet west of the Tercio Cemetery in the Quatro Meadows, T. 34 S., R. 68 W.; USGS Torres topographic quadrangle; 37 degrees 3 minutes 43.20 seconds north latitude and 105 degrees 1 minutes 9.20 seconds west longitude; UTM 498,292 meters E., 4,101,751 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 3 inches; dark gray (10YR 4/1) clay loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; many very fine roots throughout; noneffervescent; neutral (pH 7.2); abrupt smooth boundary.

Bt1—3 to 12 inches; dark gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) moist; moderate medium prismatic structure parting to strong fine subangular blocky structure; firm, extremely hard, moderately sticky and moderately plastic; many very fine roots throughout; 10 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 6.8); abrupt wavy boundary.

- Bt2—12 to 18 inches; dark gray (10YR 4/1) silty clay, very dark gray (10YR 3/1) moist; strong medium prismatic structure parting to strong fine and medium angular blocky structure; very firm, extremely hard, very sticky and very plastic; many very fine roots throughout; 30 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 7.0); clear smooth boundary.
- Bt3—18 to 29 inches; dark gray (10YR 4/1) silty clay, very dark gray (10YR 3/1) moist; strong coarse prismatic structure parting to strong coarse angular blocky structure; very firm, extremely hard, very sticky and very plastic; many very fine roots between peds; 35 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 6.6); gradual wavy boundary.
- Btk1—29 to 35 inches; dark gray (10YR 4/1) clay, very dark grayish brown (10YR 3/2) moist; strong coarse prismatic structure parting to strong coarse subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine roots between peds; 30 percent distinct clay films on all faces of peds; 10 percent medium spherical carbonate masses throughout; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Btk2—35 to 40 inches; grayish brown (10YR 5/2) clay, dark grayish brown (10YR 4/2) moist and crushed; moderate medium subangular blocky structure; very firm, very hard, very sticky and very plastic; few very fine roots between peds; 10 percent distinct clay films on all faces of peds; 10 percent fine irregular carbonate masses throughout; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- BCK—40 to 56 inches; grayish brown (10YR 5/2) silty clay, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; few very fine roots between peds; 2 percent distinct clay films on all faces of peds; 25 percent fine and medium irregular carbonate masses throughout; slightly effervescent; slightly alkaline (pH 7.5); clear smooth boundary.
- Bk—56 to 66 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; massive; firm, hard, moderately sticky and moderately plastic; 15 percent medium irregular carbonate masses throughout; violently effervescent; slightly alkaline (pH 7.7).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist continuously from May through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 60 to 62 degrees F.

*Depth to diagnostic features:* 3 to 8 inches to the argillic horizon; 20 to 40 inches to secondary carbonates; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 20 to 40 inches

##### *Particle-size control section (weighted average):*

*Clay content:* 40 to 50 percent

*Sand content:* 5 to 15 percent

*Rock fragment content:* 0 to 5 percent gravel

##### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 or 2

*Clay content:* 27 to 35 percent

*Rock fragment content:* 0 to 5 percent gravel

*Reaction:* slightly acid or neutral  
*Organic matter content:* 3.0 to 5.0 percent  
*Cation-exchange capacity:* 22.7 to 29.3 meq/100 grams

Bt horizon(s):

*Hue:* 7.5YR to 2.5Y  
*Value:* 3 or 4 dry, 2 or 3 moist  
*Chroma:* 1 to 3  
*Texture:* silty clay loam, silty clay, clay  
*Clay content:* 35 to 50 percent  
*Rock fragment content:* 0 to 5 percent gravel  
*Reaction:* slightly acid to slightly alkaline  
*Organic matter content:* 1.0 to 4.0 percent  
*Cation-exchange capacity:* 28.2 to 39.5 meq/100 grams

Btk horizon(s):

*Hue:* 10YR or 2.5Y  
*Value:* 4 to 6 dry, 3 or 4 moist  
*Chroma:* 1 to 3  
*Texture:* clay, silty clay  
*Clay content:* 40 to 50 percent  
*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 2 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* neutral or slightly alkaline  
*Organic matter content:* 1.0 to 2.0 percent  
*Cation-exchange capacity:* 31.0 to 38.9 meq/100 grams

BCtk horizon(s):

*Hue:* 10YR or 2.5Y  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 2 or 3  
*Texture:* silty clay loam, silty clay  
*Clay content:* 35 to 45 percent  
*Rock fragment content:* 2 to 7 percent fine gravel and 3 to 8 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* slightly alkaline or moderately alkaline  
*Cation-exchange capacity:* 23.4 to 35.0 meq/100 grams

Bk horizon(s):

*Hue:* 10YR or 2.5Y  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 2 or 3  
*Texture:* silty clay loam, clay loam  
*Clay content:* 30 to 40 percent  
*Rock fragment content:* 2 to 7 percent fine gravel and 3 to 8 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2



*Reaction:* slightly alkaline or moderately alkaline  
*Cation-exchange capacity:* 20.4 to 31.0 meq/100 grams

## Barela Series

*Map unit(s):* BT, RB  
*Depth class:* deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* lava plateaus  
*Position on landform:* rise  
*Parent material:* alluvium and residuum weathered from basalt  
*Elevation:* 8,000 to 9,000 feet (2,438 to 2,743 meters)  
*Slope:* 1 to 9 percent  
*Climatic data:*  
    *Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)  
    *Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)  
    *Frost-free period:* 80 to 100 days  
*Taxonomic class:* Fine, smectitic, frigid Typic Argiustolls

### Typical Pedon

*Map unit in which located:* Barela-Raton complex, 1 to 8 percent slopes  
*Location in survey area:* Barela silt loam; in an area of Barela-Raton complex, 1 to 8 percent slopes; in rangeland; an unsectionalized area about 3,700 feet west and 2,400 feet north of the southwest corner of section 4. T., 35 S., R. 62 W.; USGS Barela topographic quadrangle; 37 degrees, 1 minutes, 24.50 seconds north latitude; and 104 degrees, 21 minutes, 46.00 seconds west longitude; UTM 556,682 meters E., 4,097,666 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* about 1 percent basalt stones

A—0 to 5 inches; very dark gray (10YR 3/1) silt loam, black (10YR 2/1) moist; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine to medium roots throughout; 1 percent gravel, 2 percent cobbles, and 5 percent stones; noneffervescent; moderately acid (pH 6.0); abrupt smooth boundary.

AB—5 to 11 inches; dark gray (10YR 4/1) stony silt loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine to medium roots throughout; 2 percent distinct skeletons throughout; 1 percent gravel, 2 percent cobbles, and 8 percent stones; noneffervescent; slightly acid (pH 6.2); clear wavy boundary.

Bt1—11 to 16 inches; brown (7.5YR 5/2) stony silty clay loam, brown (7.5YR 4/2) moist; weak fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine to medium roots throughout; 10 percent distinct clay films all faces of peds; 5 percent gravel and 15 percent stones; noneffervescent; slightly acid (pH 6.2); abrupt wavy boundary.

Bt2—16 to 20 inches; light brown (7.5YR 6/3) gravelly silty clay loam, brown (7.5YR 4/3) moist; moderate fine subangular blocky structure; firm, hard, moderately sticky and moderately plastic; few very fine to medium roots throughout; 10 percent distinct clay films all faces of peds; 15 percent gravel and 1 percent cobbles; noneffervescent; slightly acid (pH 6.2); clear wavy boundary.



Bt3—20 to 30 inches; brown (7.5YR 5/3) gravelly silty clay, brown (7.5YR 4/3) moist; moderate medium prismatic structure parting to strong fine and medium angular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine and fine roots throughout; 60 percent prominent clay films on all faces of peds; 20 percent gravel; noneffervescent; slightly acid (pH 6.4); gradual wavy boundary.

Bt4—30 to 36 inches; brown (7.5YR 5/4) cobbly silty clay, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine and fine roots throughout; 35 percent prominent clay films on all faces of peds; 10 percent gravel and 10 percent cobbles; noneffervescent; neutral (pH 6.8); clear wavy boundary.

Bt5—36 to 43 inches; brown (7.5YR 5/3) very stony clay, brown (7.5YR 4/3) moist; moderate fine subangular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; few very fine and fine roots throughout; 35 percent prominent clay films on all faces of peds; 10 percent gravel, 10 percent cobbles, and 30 percent stones; noneffervescent; neutral (pH 7.0); abrupt irregular boundary.

R—43 to 60 inches; unweathered bedrock; indurated; fractured disoriented bedrock.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist continuously through the year with peak periods from April through August

*Mean annual soil temperature:* 44 to 46 degrees F.

*Mean summer soil temperature:* 59 to 61 degrees F.

*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

*Depth to diagnostic features:* 40 to 60 inches to lithic contact; 11 to 15 inches to the argillic horizon; 0 inches to the mollic epipedon

*Thickness of the argillic horizon:* 30 to 50 inches

*Thickness of the mollic epipedon:* 11 to 15 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 25 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 or 2

*Clay content:* 15 to 25 percent

*Rock fragment content:* 0 to 1 percent fine gravel, 0 to 2 percent medium and coarse gravel, 0 to 2 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 3.0 to 7.0 percent

*Cation-exchange capacity:* 15.8 to 32.5 meq/100 grams

#### *Bt1, Bt2, Bt3 horizons:*

*Hue:* 5YR to 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 3 or 4

*Texture:* stony silty clay loam, gravelly silty clay, gravelly silty clay loam

*Clay content:* 35 to 55 percent

*Rock fragment content:* 15 to 20 percent total: 0 to 5 percent fine gravel, 0 to 10 percent cobbles, and 0 to 15 percent stones

*Reaction:* slightly acid or neutral  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 14.5 to 42.4 meq/100 grams

**Bt4 horizon(s):**

*Hue:* 5YR to 10YR  
*Value:* 4 or 5 dry, 3 or 4 moist  
*Chroma:* 3 or 4  
*Texture:* cobbly silty clay, cobbly silty clay loam, cobbly clay  
*Clay content:* 15 to 35 percent  
*Rock fragment content:* 15 to 35 percent total: 1 to 4 percent are fine gravel, 4 to 10 percent medium and coarse gravel, 10 to 20 percent cobbles, and 0 to 1 percent stones  
*Reaction:* slightly acid or neutral  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 18.2 to 33.7 meq/100 grams

**Bt5 horizon(s):**

*Hue:* 5YR to 10YR  
*Value:* 4 or 5 dry, 3 or 4 moist  
*Chroma:* 3 or 4  
*Texture:* very stony clay, very stony silty clay loam  
*Clay content:* 35 to 50 percent  
*Rock fragment content:* 35 to 50 percent total: 2 to 5 percent fine gravel, 7 to 10 percent medium and coarse gravel, 6 to 10 percent cobbles, and 20 to 30 percent stones  
*Reaction:* slightly acid or neutral  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 6.0 to 24.7 meq/100 grams

## Beckton Series

*Map unit(s):* AV  
*Depth class:* very shallow to shallow  
*Drainage class:* well drained  
*Slowest permeability:* .001 to .06 in./hr. (very slow)  
*Landform:* terraces  
*Position on landform:* tread  
*Parent material:* clayey alluvium  
*Elevation:* 5,000 to 6,100 feet (1,524 to 1,860 meters)  
*Slope:* 0 to 2 percent  
*Climatic data:*  
*Mean annual precipitation:* 13 to 15 inches (331 to 381 millimeters)  
*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.7 degrees C.)  
*Frost-free period:* 125 to 155 days  
*Taxonomic class:* Fine, smectitic, mesic Aridic Natrustolls

### Typical Pedon

*Map unit in which located:* Aguilar-Beckton complex, 0 to 2 percent slopes  
*Location in survey area:* Beckton silt loam; in an area of Aguilar-Beckton complex, 0 to 2 percent slopes; in shrub cover; about 500 feet west and 800 feet south of the northeast corner of section 31, T. 31 S., R. 63 W.; USGS Vega Corral topographic quadrangle; 37 degrees, 23 minutes, 45.00 seconds north latitude; and 104 degrees, 29 minutes, 9.40 seconds west longitude; UTM 545,501 meters

E., 4,138,902 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 3 inches; pale brown (10YR 6/3) silt loam, dark olive brown (2.5Y 3/3) moist; weak thin platy structure and weak fine granular structure; friable, hard, moderately sticky and moderately plastic; many very fine and fine roots throughout; noneffervescent; moderately alkaline (pH 8.0); clear smooth boundary.
- Btn1—3 to 13 inches; grayish brown (2.5Y 5/2) silty clay loam, very dark grayish brown (2.5Y 3/2) moist; weak coarse prismatic structure parting to moderate medium subangular blocky structure; firm, hard, very sticky and very plastic; many very fine and fine roots throughout; 50 percent sodium absorption ratio; common distinct clay films on all faces of peds and in pores; 10 percent fine irregular salt masses throughout; noneffervescent; strongly alkaline (pH 8.8); clear smooth boundary.
- Btn2—13 to 23 inches; brown (10YR 5/3) silty clay, dark brown (10YR 3/3) moist; weak coarse prismatic structure parting to moderate fine and medium subangular blocky structure; very firm, very hard, very sticky and very plastic; common very fine and fine roots throughout; 48 percent sodium absorption ratio; common distinct clay films on all faces of peds and in pores; 10 percent fine and medium irregular salt masses throughout; slightly effervescent (1 percent calcium carbonate equivalent); very strongly alkaline (pH 9.4); gradual smooth boundary.
- Btny—23 to 36 inches; brown (10YR 5/3) silty clay, brown (10YR 4/3) moist; weak medium and coarse prismatic structure parting to moderate medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; common very fine and fine roots throughout; 25 percent sodium absorption ratio; common distinct clay films on all faces of peds and in pores; 10 percent fine and medium irregular salt masses throughout; strongly effervescent (1 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.
- Bny—36 to 52 inches; grayish brown (10YR 5/2) silty clay, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; common very fine and fine roots throughout; 37 percent sodium absorption ratio; 5 percent fine and medium irregular salt masses throughout; slightly effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.
- Bky1—52 to 59 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; common fine roots throughout; 8 percent fine and medium irregular carbonate and gypsum masses throughout; strongly effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear wavy boundary.
- 2Bky2—59 to 78 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; friable, hard, slightly sticky and slightly plastic; common fine roots throughout; 5 percent fine and medium irregular carbonate masses throughout; strongly effervescent (2 percent calcium carbonate equivalent); moderately alkaline (pH 8.4).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 50 to 54 degrees F.

*Mean summer soil temperature:* 70 to 72 degrees F.

*Depth to restrictive feature:* 2 to 6 inches to the natric horizon

*Depth to diagnostic features:* 2 to 6 inches to the natric horizon; 0 to 13 inches to secondary carbonates

*Thickness of the mollic epipedon:* 10 to 25 inches

*Sodium absorption ratio:* 15 to 50 percent

*Particle-size control section (weighted average):*

*Clay content:* 40 to 50 percent

*Sand content:* 5 to 35 percent

*Rock fragment content:* 0 to 5 percent

A horizon(s):

*Hue:* 10YR or 2.5Y

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Clay content:* 18 to 27 percent

*Calcium carbonate equivalent:* 0 to 2 percent

*Electrical conductivity:* 2 to 16 mmhos/cm

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 12.9 to 26.2 meq/100 grams

Btn horizon(s):

*Hue:* 10YR or 2.5Y

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* silty clay, clay, silty clay loam

*Clay content:* 35 to 50 percent

*Calcium carbonate equivalent:* 0 to 5 percent

*Electrical conductivity:* 8 to 16 mmhos/cm

*Sodium adsorption ratio:* 15 to 40

*Reaction:* moderately alkaline to very strongly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 18.2 to 39.0 meq/100 grams

Btny horizon(s):

*Hue:* 10YR or 2.5Y

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* clay, silty clay

*Clay content:* 40 to 50 percent

*Calcium carbonate equivalent:* 1 to 5 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 8 to 16 mmhos/cm

*Sodium adsorption ratio:* 15 to 40

*Reaction:* moderately alkaline to very strongly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 18.2 to 39.0 meq/100 grams

Bkn horizon(s):

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* silty clay, silty clay loam, sandy clay loam, sandy loam

*Clay content:* 15 to 50 percent

*Calcium carbonate equivalent:* 1 to 15 percent

*Gypsum content:* 0 to 5 percent

*Electrical conductivity:* 2 to 16 mmhos/cm

*Sodium adsorption ratio:* 15 to 35

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 1.7 to 31.0 meq/100 grams

## Bloom Series

*Map unit(s):* BwA

*Depth class:* very deep

*Drainage class:* somewhat poorly drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* flood plains

*Position on landform:* tread

*Parent material:* silty alluvium

*Elevation:* 5,000 to 5,800 feet (1,524 to 1,768 meters)

*Slope:* 0 to 2 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, calcareous, mesic Aeric Fluvaquents

### Typical Pedon

*Map unit in which located:* Bloom silty clay loam, 0 to 2 percent slopes

*Location in survey area:* Bloom silty clay loam; in an area of Bloom silty clay loam, 0 to 2 percent slopes; about 1,000 feet south and 250 feet east of the northwest corner of section 27, T. 32 S., R. 63 W.; USGS Mooney Hills topographic quadrangle; 37 degrees, 13 minutes, 58.50 seconds north latitude; and 104 degrees, 26 minutes, 44.40 seconds west longitude; 549,173 meters E., 4,120,856 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

Ap—0 to 8 inches; light brownish gray (10YR 6/2) silty clay loam, dark gray (10YR 4/1) moist; weak fine angular blocky structure; firm, very hard, slightly sticky and moderately plastic; many fine and medium roots throughout; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

A<sub>cg</sub>—8 to 18 inches; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium and coarse subangular blocky structure; firm, very hard, slightly sticky and slightly plastic; many fine and medium roots throughout; 3 percent fine distinct irregular reddish brown (5YR 4/4) moist, masses of oxidized iron in matrix and 10 percent fine prominent irregular gray (N 5/) moist, iron depletions in matrix; 10 percent medium spherical salt masses throughout; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

B<sub>zg</sub>1—18 to 45 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; massive; firm, very hard, slightly sticky and slightly plastic; common fine and medium roots throughout; 2 percent fine prominent irregular reddish brown (5YR 4/4) moist, masses of oxidized iron in matrix and 10 percent fine distinct irregular gray (10YR 5/1) moist, iron depletions in matrix; 24 percent medium spherical salt masses throughout; strongly effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.

B<sub>zg</sub>2—45 to 60 inches; light brownish gray (2.5Y 6/2) silt loam, dark grayish brown (2.5Y 4/2) moist; massive; friable, hard, slightly sticky and slightly plastic; common fine and medium roots throughout; 10 percent medium prominent irregular gray

(N 5/) moist, iron depletions in matrix and 10 percent fine and medium prominent irregular yellowish brown (10YR 5/8) moist, masses of oxidized iron in matrix; strongly effervescent; moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* aquic

*Seasonal pattern:* moist continuously from April through September

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 12 to 36 inches to aquic conditions; 8 to 18 inches to redoximorphic features; 0 inches to the ochric epipedon

*Seasonal high water table:* present from April through September

*Depth to top:* 12 to 36 inches

*Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 10 to 35 percent, with less than 15 percent fine and coarser sand

*Rock fragment content:* 0 to 5 percent

*Ap, A or AC horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 1 or 2

*Clay content:* 28 to 35 percent

*Calcium carbonate equivalent:* 0 to 5 percent

*Electrical conductivity:* 0 to 8 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* moderately alkaline to strongly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 21.9 to 27.5 meq/100 grams

*Bkg and Czg horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 6 or 7 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Texture:* silty clay loam, silt loam, stratified loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 2 to 8 percent

*Gypsum content:* 1 to 5 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* moderately alkaline to strongly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 16.2 to 27.5 meq/100 grams

## Boxcanyon Series

*Map unit(s):* Bx

*Depth class:* deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)



*Landform:* plains

*Position on landform:* rise

*Parent material:* loess over residuum weathered from sandstone

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 0 to 3 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 145 days

*Taxonomic class:* Fine, smectitic, mesic Calcic Haplustalfs

### Typical Pedon

*Map unit in which located:* Boxcanyon silt loam, 0 to 3 percent slopes

*Location in survey area:* Boxcanyon silt loam; in an area of Boxcanyon silt loam, 0 to 3 percent slopes; in rangeland; about 20 feet east and 200 feet north of the southwest corner of section 34, T. 31 S., R. 57 W.; USGS Doss Canyon South topographic quadrangle; 37 degrees, 17 minutes, 54.80 seconds north latitude; and 103 degrees, 47 minutes, 39.60 seconds west longitude; UTM 606,858 meters E., 4,128,673 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 2 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
- Bt—2 to 17 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; strong medium prismatic structure parting to strong fine and medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; many very fine roots throughout; 35 percent distinct clay films on all faces of peds; slightly effervescent (2 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); clear smooth boundary.
- Btk1—17 to 27 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) moist; strong fine and medium prismatic structure parting to moderate very fine and fine angular blocky structure; firm, extremely hard, very sticky and very plastic; many very fine and fine roots throughout; 55 percent prominent clay films on all faces of peds; 15 percent medium distinct carbonate masses; violently effervescent (10 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.
- Btk2—27 to 33 inches; light brown (7.5YR 6/4) silty clay loam, brown (7.5YR 5/4) moist; strong medium prismatic structure parting to moderate very fine and fine subangular blocky structure; firm, extremely hard, moderately sticky and moderately plastic; common very fine and fine roots throughout; 25 percent distinct clay films on vertical faces of peds; 5 percent medium distinct carbonate masses; violently effervescent (13 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt wavy boundary.
- Bk1—33 to 45 inches; very pale brown (10YR 8/4) loam, light yellowish brown (10YR 6/4) moist; weak fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 90 percent fine distinct irregular carbonate masses; violently effervescent (42 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.
- 2Bk2—45 to 54 inches; light yellowish brown (10YR 6/4) gravelly loam, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 10 percent fine distinct carbonate masses and 5 percent medium distinct gypsum crystals; 18 percent



gravel; violently effervescent (17 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt.  
2R—54 to 60 inches; weathered bedrock; indurated; hard Dakota sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 66 to 72 degrees F.

*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)

*Depth to diagnostic features:* 29 to 40 inches to the calcic horizon; 40 to 60 inches to lithic contact; 2 to 4 inches to the argillic horizon; 0 to 8 inches to secondary carbonates; 0 inches to the ochric epipedon

*Thickness of the argillic horizon:* 26 to 38 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 46 percent

*Sand content:* 5 to 20 percent

#### A horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 18 to 27 percent

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 12.9 to 26.2 meq/100 grams

#### Bt horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* silty clay loam, clay, silty clay

*Clay content:* 35 to 50 percent

*Calcium carbonate equivalent:* 1 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 18.2 to 39.0 meq/100 grams

#### Btk horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 3 to 6

*Texture:* silty clay loam, silty clay, clay

*Clay content:* 35 to 45 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline to strongly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 18.2 to 35.6 meq/100 grams

#### Bk1 horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 to 8 dry, 5 to 7 moist

*Chroma:* 3 to 6

*Texture:* loam, silty clay loam, clay loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 0 to 2 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 20 to 50 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 3.7 to 22.8 meq/100 grams

2Bk2 horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 or 8 dry, 5 to 7 moist

*Chroma:* 3 to 6

*Texture:* fine gravelly loam, fine gravelly silt loam, fine gravelly sandy clay loam

*Clay content:* 15 to 27 percent

*Rock fragment content:* 9 to 25 percent fine gravel and 6 to 10 percent medium and coarse gravel

*Calcium carbonate equivalent:* 15 to 50 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* moderately alkaline to strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 2.9 to 14.5 meq/100 grams

## Breece Series

*Map unit(s):* Ct

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* drainageways, fans

*Position on landform:* rise

*Parent material:* sandy alluvium derived from sandstone

*Elevation:* 7,000 to 8,500 feet (2,134 to 2,592 meters)

*Slope:* 5 to 15 percent

*Climatic data:*

*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)

*Mean annual air temperature:* 42 to 44 degrees F. (5.5 to 6.7 degrees C.)

*Frost-free period:* 75 to 90 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, frigid Pachic Haplustolls

### Typical Pedon

*Map unit in which located:* Breece sandy loam, 5 to 15 percent slopes

*Location in survey area:* Breece sandy loam; in an area of Breece sandy loam, 5 to 15 percent slopes; in rangeland; about 2,200 feet north and 1,000 feet east of the southwest corner of section 30, T. 31 S., R. 67 W.; USGS Herlick Canyon topographic quadrangle; 37 degrees, 18 minutes, 52.40 seconds north latitude; and 104 degrees, 55 minutes, 57.00 seconds west longitude; UTM 505,980 meters E., 4,129,770 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A1—0 to 7 inches; dark gray (5YR 4/1) sandy loam, black (5YR 2/1) moist; moderate very fine granular structure; friable, slightly hard, nonsticky and nonplastic; many fine and medium roots throughout; noneffervescent; neutral (pH 7.2); clear smooth boundary.
- A2—7 to 45 inches; dark gray (5YR 4/1) sandy loam, black (5YR 2/1) moist; weak fine granular structure, and weak coarse prismatic structure; friable, slightly hard, nonsticky and nonplastic; many fine and medium roots throughout; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- C—45 to 60 inches; weak red (2.5YR 5/2) sandy loam, dusky red (2.5YR 3/2) moist; massive; very friable, soft, nonsticky and nonplastic; few fine and medium roots throughout; violently effervescent; moderately alkaline (pH 8.2).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some parts from April through August

*Mean annual soil temperature:* 43 to 45 degrees F.

*Mean summer soil temperature:* 58 to 62 degrees F.

*Thickness of the mollic epipedon:* 16 to 50 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 50 to 75 percent

*Rock fragment content:* 0 to 15 percent

#### A horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 1 or 2

*Clay content:* 10 to 18 percent

*Texture:* sandy loam or coarse sandy loam

*Rock fragment content:* 0 to 10 percent fine gravel, 0 to 5 percent medium and coarse gravel, and 0 to 1 percent cobbles

*Reaction:* slightly acid or neutral

*Organic matter content:* 1.0 to 4.0 percent

*Cation-exchange capacity:* 8.9 to 15.9 meq/100 grams

#### C horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Texture:* coarse sandy loam, sandy loam

*Clay content:* 5 to 18 percent

*Rock fragment content:* 0 to 9 percent fine gravel, 0 to 5 percent medium and coarse gravel, and 0 to 1 percent cobbles

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 4.6 to 15.5 meq/100 grams

## Calcidic Argiustolls Taxon above family

*Map unit(s):* AR

*Depth class:* deep, very deep

*Drainage class:* well drained

*Permeability:* moderately slow

*Landform:* lava plateau

*Position on landform:* Side slope, head slope

*Parent material:* colluvium

*Elevation:* 5,000 to 7,000 feet

*Slope:* 40 to 55 percent

*Climatic data:*

*Average annual precipitation:* 15 to 17 inches

*Average annual temperature:* 48 to 52 degrees F.

*Frost-free period:* 120 to 140 days

*Taxonomic class:* Calcic Argiustolls

### Typical Pedon

*Map unit in which located:* Calcic Argiustolls-Rock outcrop complex, 40 to 60 percent slopes

*Location in survey area:* Calcic Argiustolls: in an area of Calcic Argiustolls-Rock outcrop complex, 40 to 60 percent slopes; about 1,300 feet west and 400 feet north of the southeast corner of section 18, T. 33 S., R. 55 W.; Tobe USGS topographic quadrangle; Latitude 37 degrees, 9 minutes, 47 seconds; and 103 degrees, 37 minutes, 3.50 seconds longitude; UTM 622,738 meters E., 4,113,859 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

The soil surface is covered by 2 percent boulders, 5 percent stones, and 20 percent cobbles.

A—0 to 8 inches; very dark gray (10YR 3/1) very stony clay loam, black (10YR 2/1) moist; strong very fine granular structure; hard, friable, sticky and plastic; 20 percent cobbles and 20 percent stones; neutral; abrupt smooth boundary.

Bt1—8 to 10 inches; brown (10YR 4/3) cobbly clay, dark brown (10YR 3/3) moist; strong very fine subangular blocky structure; extremely hard, firm, very sticky and very plastic; thin continuous clay films on faces of peds; 25 percent cobbles and 5 percent stones; neutral; abrupt smooth boundary.

Bt2—10 to 20 inches; brown (7.5YR 5/4) cobbly clay, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; extremely hard, very firm, very sticky and very plastic; thin continuous clay films on faces of peds; 25 percent cobbles and 5 percent stones; slightly alkaline; abrupt wavy boundary.

Btk—20 to 35 inches; light brown (7.5YR 6/4) very cobbly clay loam, brown (7.5YR 5/4) moist; moderate fine subangular blocky structure; hard, friable, sticky and plastic; thin continuous clay films on faces of peds; common medium soft masses of lime; 5 percent pebbles, 20 percent cobbles, and 10 percent stones; strongly effervescent; moderately alkaline; gradual wavy boundary.

Bk—35 to 60 inches; white (10YR 8/1) very cobbly clay loam, light gray (10YR 7/2) moist; massive; hard, friable, slightly sticky and slightly plastic; 10 percent pebbles, 20 percent cobbles, and 10 percent stones; violently effervescent; moderately alkaline.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Average annual soil temperature:* 49 to 53 degrees F.

*Average summer soil temperature:* 68 to 72 degrees F.

*Depth to diagnostic features:* 40 to 72 or more inches to lithic contact; 10 to 20 inches to secondary carbonates

*Thickness of the mollic epipedon:* 7 to 16 inches

*Thickness of the argillic horizon:* 20 to 40 inches

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 15 to 45 percent

*Rock fragment content:* 25 to 60 percent

*A horizon:*

*Hue:* 10YR or 7.5YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 20 to 35 percent

*Rock fragment content:* 5 to 15 percent gravel, 10 to 20 percent cobbles, and 20 to 25 percent stones

*Reaction:* neutral or slightly alkaline

*Bt and Btk horizons:*

*Hue:* 10YR to 5YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 3 or 4

*Texture of the fine-earth fraction:* clay, clay loam

*Clay content:* 35 to 50 percent

*Rock fragment content:* 0 to 10 percent gravel, 15 to 30 percent cobbles, and 10 to 20 percent stones

*Reaction:* slightly alkaline or moderately alkaline

\*Note: This soil is not classified to the family level because the family rock fragments vary from skeletal to nonskeletal, and the depth to bedrock averages from 40 to more than 72 inches.

## Calemore Series

*Map unit(s):* CpB, CpA

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* plains, fan

*Position on landform:* talf, rise

*Parent material:* loess mixed with alluvium

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Slope:* 0 to 3 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Aridic Argiustolls

### Typical Pedon

*Map unit in which located:* Calemore silt loam, 0 to 3 percent slopes

*Location in survey area:* Calemore silt loam; in an area of Calemore silt loam, 0 to 3 percent slopes; in rangeland; about 2,250 feet east and 450 feet north of the southwest corner of section 2, T. 34 S., R. 58 W.; USGS Branson SE topographic quadrangle; 37 degrees, 6 minutes, 15.60 seconds north latitude; and 103

degrees, 52 minutes, 43.20 seconds west longitude; UTM 599,636 meters E., 4,107,035 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 7 inches; dark grayish brown (10YR 4/2), silt loam, very dark grayish brown (10YR 3/2), moist; 22 percent clay; weak fine granular structure; very friable, soft, slightly sticky and slightly plastic; noneffervescent; neutral (pH 7.2); clear smooth boundary.
- Bt1—7 to 11 inches; brown (10YR 4/3), silty clay loam, dark brown (10YR 3/3), moist; 30 percent clay; moderate fine subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 35 percent continuous clay films on faces of peds; very slightly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- Bt2—11 to 20 inches; brown (10YR 5/3), silty clay loam, brown (10YR 4/3), moist; 33 percent clay; moderate medium prismatic structure parting to moderate fine and medium subangular blocky structure; friable, hard, moderately sticky and moderately plastic; 45 percent continuous clay films on faces of peds; violently effervescent (1 percent calcium carbonate equivalent); slightly alkaline (pH 7.8); clear smooth boundary.
- Btk1—20 to 36 inches; yellowish brown (10YR 5/4), clay loam, dark yellowish brown (10YR 4/4), moist; 32 percent clay; moderate medium prismatic structure parting to moderate fine subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; 30 percent continuous clay films on faces of peds; 15 percent medium faint irregular carbonate masses throughout; violently effervescent (7 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Btk2—36 to 42 inches; dark yellowish brown (10YR 4/4), silty clay loam, dark yellowish brown (10YR 3/4), moist; 27 percent clay; weak fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 20 percent patchy clay films on faces of peds; 25 percent medium distinct spherical carbonate masses throughout; violently effervescent (7 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.
- Bk—42 to 65 inches; brown (7.5YR 5/4), silt loam, brown (7.5YR 4/4), moist; 24 percent clay; massive; very friable, soft, slightly sticky and slightly plastic; 13 percent fine faint irregular carbonate masses throughout; violently effervescent (25 percent calcium carbonate equivalent); moderately alkaline (pH 8.2).

#### **Range in Characteristics**

##### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August, and intermittently moist in July and August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 66 to 72 degrees F.

*Depth to diagnostic features:* 4 to 16 inches to the argillic horizon; 4 to 15 inches to secondary carbonates; 0 inches to the mollic epipedon

*Thickness of the argillic horizon:* 26 to 42 inches

*Thickness of the mollic epipedon:* 8 to 20 inches

##### *Particle-size control section (weighted average):*

*Clay content:* 25 to 35 percent



*Sand content:* 5 to 25 percent, with less than 15 percent fine sand or coarser

*Rock fragment content:* 0 to 5 percent

A horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 to 5 dry, 2 or 3 moist

*Chroma:* 2 or 3 dry or moist

*Texture:* silt loam, clay loam

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 15.1 to 28.2 meq/100 grams

*Other features:* Some pedons are leached to 10 inches.

Bt horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3 dry or moist

*Texture:* silt loam or silty clay loam

*Clay content:* 20 to 35 percent

*Sand content:* 5 to 25 percent with less than 15 percent fine or coarser

*Reaction:* neutral to moderately alkaline

*Texture:* silt loam, silty clay loam

*Calcium carbonate equivalent:* 0 to 2 percent

*Organic matter content:* 0.5 to 3.0 percent

*Cation-exchange capacity:* 16.6 to 28.7 meq/100 grams

Btk horizon(s):

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* clay loam, silty clay loam

*Clay content:* 27 to 35 percent

*Sand content:* 5 to 25 percent with less than 15 percent fine or coarser sand

*Calcium carbonate equivalent:* 5 to 15 percent

*Reaction:* moderately alkaline or strongly alkaline

*Texture:* silty clay loam, clay loam

*Calcium carbonate equivalent:* 1 to 15 percent

*Electrical conductivity:* 0 to 1 mmhos/cm

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 18.6 to 27.5 meq/100 grams

Bk horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry and 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* loam or silt loam

*Clay content:* 15 to 27 percent

*Calcium carbonate equivalent:* 5 to 35 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 0

*Reaction:* moderately alkaline or strongly alkaline



*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 10.9 to 26.7 meq/100 grams

## Capulin Series

*Map unit(s):* AC, CC, CpC, CpT  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* fan remnants, fans, lava plateaus, plains  
*Position on landform:* Rise, talf  
*Parent material:* alluvium and residuum weathered from sandstone, alluvium derived from basalt, alluvium derived from basalt and sandstone  
*Elevation:* 5,000 to 7,000 feet (1,524 to 2,134 meters)  
*Slope:* 0 to 7 percent  
*Climatic data:*  
     *Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)  
     *Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.7 degrees C.)  
     *Frost-free period:* 120 to 145 days  
*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Aridic Argiustolls

### Typical Pedon

*Map unit in which located:* Capulin loam, 1 to 6 percent slopes  
*Location in survey area:* Capulin loam; in an area of Capulin loam, 1 to 6 percent slopes; in rangeland; about 200 feet north and 1,250 feet west of the southeast corner of section 14, T. 33 S., R. 54 W.; USGS Dalerose Mesa topographic quadrangle; 37 degrees, 9 minutes, 45.40 seconds north latitude; and 103 degrees, 25 minutes, 52.00 seconds west longitude; UTM 639,299.8 meters E., 4,114,063 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 8 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; moderate fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.2); clear smooth boundary.

Bt1—8 to 17 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; strong fine and medium subangular blocky structure; friable, hard, moderately sticky and moderately plastic; many very fine and fine roots throughout; 30 percent distinct clay films on all faces of peds and in pores; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—17 to 32 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; many very fine and fine roots throughout; 30 percent distinct clay films on all faces of peds and in pores; strongly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bk1—32 to 38 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few very fine roots throughout; 5 percent distinct clay films on vertical faces of peds and in pores; 10 percent medium irregular carbonate masses throughout; violently effervescent (15 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.

Bk2—38 to 60 inches; very pale brown (10YR 7/3) gravelly loam, brown (10YR 5/3) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; 15 percent

gravel; violently effervescent (18 percent calcium carbonate equivalent); moderately alkaline (pH 8.4).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 49 to 54 degrees F.

*Mean summer soil temperature:* 68 to 72 degrees F.

*Depth to diagnostic features:* 32 to 40 inches to the calcic horizon; 7 to 10 inches to the argillic horizon; 0 inches to the mollic epipedon; 5 to 20 inches to secondary carbonates

*Thickness of the mollic epipedon:* 7 to 19 inches

*Thickness of the A and Bt horizons:* 20 to 35 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 27 to 35 percent

*Sand content:* 30 to 50 percent

*Rock fragment content:* 0 to 15 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 18 to 27 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 15.1 to 22.7 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 2 to 5 moist

*Chroma:* 2 or 3

*Clay content:* 27 to 35 percent

*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 21.2 to 28.2 meq/100 grams

#### *Bk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 to 8 dry, 4 to 6 moist

*Chroma:* 2 to 4

*Texture:* gravelly loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 5 to 15 percent fine gravel and 10 to 20 percent medium and coarse gravel

*Calcium carbonate equivalent:* 15 to 25 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 1

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 12.9 to 21.2 meq/100 grams

## Chacuaco Series

*Map unit(s):* CD, CC

*Depth class:* Moderately deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* ridges, interfluvies, plains

*Position on landform:* side slope, rise

*Parent material:* eolian deposits over residuum weathered from sandstone

*Elevation:* 5,000 to 6,000 feet

*Slope:* 1 to 4 percent

*Climatic data:*

*Average annual precipitation:* 14 to 16 inches

*Average annual temperature:* 50 to 53 degrees F.

*Frost-free period:* 125 to 145 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Aridic Argiustolls

### Typical Pedon

*Map unit in which located:* Chacuaco-Daleroose loams complex, 2 to 7 percent slopes

*Location in survey area:* Chacuaco loam; in an area of Chacuaco-Daleroose loams complex, 2 to 7 percent slopes; about 1,000 feet north and 150 feet east of the southwest corner of section 35, T. 34 S., R. 53 W.; USGS Dennis Canyon topographical quadrangle; 37 degrees, 2 minutes 10.40 seconds north latitude; and 103 degrees, 20 minutes, 2.00 seconds west longitude; UTM 648,182 meters E., 4,100,190 meters N., zone 13, NAD83.

A—0 to 5 inches; brown (10YR 4/3) loam, very dark brown (10YR 3/2) moist; moderate fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; mildly alkaline; clear smooth boundary.

AB—5 to 10 inches; brown (10YR 4/3) loam, very dark brown (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; strongly effervescent (5 percent calcium carbonate equivalent); moderately alkaline; clear smooth boundary.

Bt—10 to 20 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; very hard, firm, sticky and plastic; 5 percent pebbles; violently effervescent (8 percent calcium carbonate); moderately alkaline; clear smooth boundary.

Bk—20 to 30 inches; very pale brown (10YR 8/3 and 10YR 8/4) very gravelly loam, very pale brown (10YR 7/4) moist; massive; soft, very friable, nonsticky and nonplastic; 30 percent pebbles and 10 percent sandstone fragments; violently effervescent (37 percent calcium carbonate); moderately alkaline; abrupt wavy boundary.

R—30 inches; unweathered bedrock; indurated; hard Dakota sandstone.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Average annual soil temperature:* 51 to 54 degrees F.

*Average summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 5 to 15 inches to secondary carbonates; 0 inches to the argillic horizon

*Depth to the base of the argillic horizon:* 17 to 30 inches

*Depth to restrictive feature:* 20 to 40 inches to lithic contact

*Thickness of the mollic epipedon:* 7 to 15 inches

*Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 20 to 60 percent

*Rock fragment content:* 0 to 15 percent

*A horizon:*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 10 to 27 percent

*Reaction:* neutral or slightly alkaline

*Bt horizon:*

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 2 to 4

*Texture:* clay loam, sandy clay loam

*Clay content:* 20 to 35 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Reaction:* slightly alkaline to moderately alkaline

*Bk horizon:*

*Hue:* 7.5YR or 10YR

*Value:* 6 to 8 dry, 4 to 7 moist

*Chroma:* 2 to 4

*Texture of the fine-earth fraction:* loam, silt loam

*Clay content:* 15 to 27 percent

*Rock fragment content:* 15 to 60 percent gravel

*Calcium carbonate equivalent:* 15 to 40 percent

## Chicosa Series

*Map unit(s):* K2D, MIK, KI

*Depth class:* very deep

*Drainage class:* somewhat excessively drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fan remnants, fans

*Position on landform:* Rise, riser

*Parent material:* sandy and gravelly alluvium

*Elevation:* 4,800 to 6,500 feet (1,372 to 1,981 meters)

*Slope:* 3 to 25 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)

*Mean annual air temperature:* 48 to 54 degrees F. (9.0 to 12.0 degrees C.)

*Frost-free period:* 120 to 155 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, mesic Aridic Calcustepts

### Typical Pedon

*Map unit in which located:* Midway-Chicosa complex, 5 to 35 percent slopes

*Location in survey area:* Chicosa gravelly loam; in an area of Midway-Chicosa complex, 5 to 35 percent slopes; in forest land; about 100 feet north and 900 feet east of the southwest corner of section 8, T. 33 S., R. 63 W.; USGS Trinidad East

topographic quadrangle; 37 degrees, 10 minutes, 40.00 seconds north latitude; and 104 degrees, 29 minutes, 1.00 seconds west longitude; UTM 545,852 meters E., 4,114,717 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 15 percent gravel and 5 percent cobbles

- A—0 to 6 inches; grayish brown (10YR 5/2) gravelly loam, dark gray (10YR 4/1) and very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; friable, soft, nonsticky and nonplastic; 5 percent cobbles and 15 percent gravel; slightly effervescent (3 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); clear smooth boundary.
- Bw—6 to 20 inches; light brown (7.5YR 6/4) very gravelly loam, brown (7.5YR 4/4) and strong brown (7.5YR 4/6) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 5 percent cobbles and 40 percent gravel; strongly effervescent (7 percent calcium carbonate equivalent); slightly alkaline (pH 7.8); abrupt smooth boundary.
- 2Bk—20 to 37 inches; very pale brown (10YR 8/3) extremely gravelly sandy loam, pale brown (10YR 6/3) moist; massive; friable, very hard, nonsticky and nonplastic; 10 percent cobbles and 55 percent gravel; violently effervescent (18 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); gradual smooth boundary.
- 2C—37 to 60 inches; brown (10YR 5/3) extremely gravelly loamy sand, brown (10YR 4/3) moist; massive; loose, nonsticky and nonplastic; 10 percent cobbles and 60 percent gravel; strongly effervescent (4 percent calcium carbonate equivalent); moderately alkaline (pH 8.4).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime class:* ustic

*Soil moisture regime subclass:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 49 to 54 degrees F.

*Mean summer soil temperature:* 68 to 74 degrees F.

*Depth to diagnostic features:* 14 to 30 inches to the calcic horizon; 14 to 30 inches to lithologic discontinuity; 4 to 6 inches to the cambic horizon; 0 inches to the ochric epipedon

*Depth to restrictive feature:* 14 to 30 inches to lithologic discontinuity

*Particle-size control section (weighted average):*

*Clay content:* 12 to 22 percent

*Sand content:* 45 to 75 percent

*Rock fragment content:* 35 to 65 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry; 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* very cobbly loam, gravelly loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 15 to 60 percent total: 5 to 10 percent fine gravel, 8 to 10 percent medium and coarse gravel, 0 to 25 percent cobbles, and 0 to 15 percent stones

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 14.7 to 22.3 meq/100 grams

**Bw horizon(s):***Hue:* 5YR to 10YR*Value:* 5 or 6 dry; 4 or 5 moist*Chroma:* 3 to 6*Texture of the fine-earth fraction:* loam, clay loam*Clay content:* 20 to 30 percent*Rock fragment content:* 35 to 60 percent total: 10 to 20 percent fine gravel, 18 to 25 percent medium and coarse gravel, 5 to 15 percent cobbles, and 0 to 5 percent stones*Calcium carbonate equivalent:* 2 to 10 percent*Reaction:* slightly alkaline or moderately alkaline*Organic matter content:* 0.5 to 1.0 percent*Cation-exchange capacity:* 16.2 to 23.9 meq/100 grams**2Bk horizon(s):***Hue:* 7.5YR or 10YR*Value:* 6 to 8 dry; 5 or 6 moist*Chroma:* 3 or 4*Texture of the fine-earth fraction:* sandy loam, loam*Clay content:* 8 to 18 percent*Rock fragment content:* 35 to 75 percent total: 15 to 25 percent fine gravel, 20 to 35 percent medium and coarse gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones*Calcium carbonate equivalent:* 15 to 40 percent*Electrical conductivity:* 0 to 4 mmhos/cm*Sodium adsorption ratio:* 0 to 5*Reaction:* pH 7.9 to 9.0*Organic matter content:* 0.0 to 0.5 percent*Cation-exchange capacity:* 6.2 to 14.7 meq/100 grams**2C horizon(s):***Hue:* 7.5YR or 10YR*Value:* 5 to 7 dry; 4 to 6 moist*Chroma:* 2 to 4*Texture of the fine-earth fraction:* loamy sand, coarse sand, loamy coarse sand*Clay content:* 1 to 7 percent*Rock fragment content:* 35 to 75 percent total: 10 to 20 percent fine gravel, 15 to 40 percent medium and coarse gravel, 0 to 20 percent cobbles, and 0 to 5 percent stones*Calcium carbonate equivalent:* 1 to 10 percent*Electrical conductivity:* 0 to 4 mmhos/cm*Sodium adsorption ratio:* 0 to 2*Reaction:* moderately alkaline or strongly alkaline*Organic matter content:* 0.0 to 0.5 percent*Cation-exchange capacity:* 1.0 to 6.3 meq/100 grams

## Collegiate Series

*Map unit(s):* Co*Depth class:* very deep*Drainage class:* somewhat poorly drained*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)*Landform:* flood plains*Position on landform:* tread



*Parent material:* loamy alluvium over gravelly alluvium derived from sandstone and shale

*Elevation:* 7,000 to 8,500 feet (2,134 to 2,591 meters)

*Slope:* 1 to 4 percent

*Climatic data:*

*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)

*Mean annual air temperature:* 40 to 43 degrees F. (4.5 to 6.0 degrees C.)

*Frost-free period:* 70 to 90 days

*Taxonomic class:* Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Cumulic Endoaquolls

### Typical Pedon

*Map unit in which located:* Collegiate loam, 1 to 4 percent slopes

*Location in survey area:* Collegiate sandy loam; in an area of Collegiate loam, 1 to 4 percent slopes; in rangeland; about 2,400 feet east and 20 feet north of the southwest corner of section 19, T. 32 S., R. 68 W.; USGS Cucharas Pass topographic quadrangle; 37 degrees, 14 minutes, 5.40 seconds north latitude; and 105 degrees, 2 minutes, 9.00 seconds west longitude; UTM 496,821 meters E., 4,120,925 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 10 inches; very dark grayish brown (10YR 3/2) sandy loam, very dark brown (10YR 2/2) moist; moderate fine and medium granular structure; very friable, slightly hard, nonsticky and nonplastic; neutral (pH 7.0); clear smooth boundary.

Ag—10 to 38 inches; dark brown (7.5YR 3/2) sandy loam, very dark brown (7.5YR 2/2) moist; weak coarse subangular blocky structure, and moderate fine granular structure; very friable, slightly hard, slightly sticky and slightly plastic; common very fine and fine roots throughout; 10 percent fine irregular strong brown (7.5YR 5/6) iron concentrations and 7 percent fine irregular grey (10YR 5/1) iron depletions throughout; neutral (pH 7.0); clear smooth boundary.

2C—38 to 60 inches; brown (7.5YR 5/3) very gravelly sand, brown (7.5YR 4/4) moist; single grain; loose, nonsticky and nonplastic; 10 percent cobbles and 30 percent gravel; slightly acid (pH 6.4).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aquic

*Seasonal pattern:* moist continuously from April through September

*Mean annual soil temperature:* 42 to 45 degrees F.

*Mean summer soil temperature:* 60 to 62 degrees F.

*Depth to diagnostic features:* 12 to 30 inches to aquic conditions; 10 to 17 inches to redoximorphic features; 12 to 30 inches to endosaturation; 26 to 40 inches to lithologic discontinuity; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 26 to 40 inches

*Seasonal high water table:* from April through September

*Depth to top:* 12 to 30 inches

*Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 50 to 75 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist



*Chroma:* 1 or 2

*Texture:* loam, fine sandy loam

*Clay content:* 10 to 18 percent

*Rock fragment content:* 0 to 6 percent fine gravel, 0 to 8 percent medium and coarse gravel, and 0 to 1 percent cobbles

*Reaction:* neutral

*Organic matter content:* 2.0 to 7.0 percent

*Cation-exchange capacity:* 9.1 to 17.9 meq/100 grams

2C horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 1 to 3

*Texture:* very gravelly sand

*Clay content:* 0 to 5 percent

*Rock fragment content:* 35 to 60 percent total: 5 to 10 percent fine gravel, 20 to 30 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 0.0 to 4.8 meq/100 grams

## Cucharas Series

*Map unit(s):* GC

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* .001 to .06 in./hr. (very slow)

*Landform:* mountain slopes

*Position on landform:* mountain flank

*Parent material:* slope alluvium and residuum weathered from clayey shale

*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)

*Slope:* 10 to 35 percent

*Climatic data:*

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 40 to 43 degrees F. (4.2 to 6.0 degrees C.)

*Frost-free period:* 40 to 70 days

*Taxonomic class:* Fine, smectitic Vertic Argicryolls

### Typical Pedon

*Map unit in which located:* Groomer-Cucharas complex, 5 to 35 percent slopes

*Location in survey area:* Cucharas clay loam; in an area of Groomer-Cucharas complex, 5 to 35 percent slopes; in rangeland; about 550 feet north and 550 feet east of southwest corner of section 36, T. 31 S., R. 69 W.; USGS Cucharas Pass topographic quadrangle; 37 degrees, 18 minutes, 5.80 seconds north latitude; and 105 degrees, 3 minutes, 31.90 seconds west longitude; UTM 494,784 meters E., 4,128,332 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 10 inches; dark gray (10YR 4/1) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; friable, slightly hard, moderately sticky and moderately plastic; few very fine roots throughout; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.

- Bt—10 to 26 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; strong coarse prismatic structure parting to strong medium subangular blocky structure; very firm, very hard, very sticky and very plastic; few very fine and fine roots throughout; 60 percent distinct clay films on all faces of peds; noneffervescent; slightly acid (pH 6.2); gradual smooth boundary.
- BCt—26 to 32 inches; grayish brown (2.5Y 5/2) clay loam, brown (10YR 4/3) moist; 10 percent fine faint light olive brown (2.5Y 5/6) iron concentrations; moderate fine and medium subangular blocky structure; very firm, very hard, very sticky and very plastic; few very fine and fine roots in cracks; 20 percent distinct clay films on all faces of peds; 5 percent shale parachanners; noneffervescent; neutral (pH 6.6); clear wavy boundary.
- Cr—32 to 60 inches; weathered bedrock; very weakly cemented; soft gray shale.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist continuously from March through September

*Mean annual soil temperature:* 41 to 44 degrees F.

*Mean summer soil temperature:* 52 to 58 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 7 to 15 inches to the argillic horizon; 20 to 40 inches to paralithic contact

*Thickness of the argillic horizon:* 10 to 30 inches

*Thickness of the mollic epipedon:* 7 to 15 inches

*Vertic features:* Cracks 1 cm. wide occur at depths of 20 inches or more and extend to the surface in dry periods.

#### *Particle-size control section (weighted average):*

*Clay content:* 40 to 55 percent

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 30 to 40 percent

*Reaction:* slightly acid or neutral

*Organic matter content:* 2.0 to 4.0 percent

*Cation-exchange capacity:* 20.0 to 40.0 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 2 or 3

*Texture:* clay, silty clay

*Clay content:* 40 to 55 percent

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 25.0 to 50.0 meq/100 grams

#### *BCt horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* clay, silty clay

*Clay content:* 40 to 55 percent  
*Parafragment content:* 5 to 25 percent  
*Reaction:* slightly acid to slightly alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 25.0 to 50.0 meq/100 grams

## Cumulic Haplocryolls

*Map unit(s):* CwC  
*Depth class:* very deep  
*Drainage class:* poorly drained  
*Slowest permeability:* .001 to .06 in./hr. (very slow)  
*Landform:* drainageways, flood plains  
*Position on landform:* dip, tread  
*Parent material:* clayey alluvium  
*Elevation:* 7,500 to 9,000 feet (2,286 to 2,743 meters)  
*Slope:* 2 to 5 percent  
*Climatic data:*  
     *Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)  
     *Mean annual air temperature:* 36 to 42 degrees F. (2.0 to 5.6 degrees C.)  
     *Frost-free period:* 50 to 75 days

*Taxonomic class:* Fine, smectitic, frigid Cumulic Cryaquolls

### Typical Pedon

*Map unit in which located:* Cumulic Haplocryolls, clay, 2 to 5 percent slopes  
*Location in survey area:* Cumulic Haplocryolls peat; in an area of Cumulic Haplocryolls, clay, 2 to 5 percent slopes; in rangeland; about 0.2 mile south and 0.25 mile west of northeast corner of section 29, T. 33 S., R. 68 W.; USGS Stonewall topographic quadrangle; 37 degrees, 8 minutes, 53.00 seconds north latitude; and 105 degrees, 0 minutes, 49.80 seconds west longitude; UTM 498,772 meters E., 4,111,301 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

Oe—0 to 2 inches; very dark grayish brown (10YR 3/2) peat, very dark brown (10YR 2/2) moist; many very fine and fine roots throughout; noneffervescent; slightly acid (pH 6.2); gradual smooth boundary.  
 Ag—2 to 10 inches; olive gray (5Y 4/2) clay, dark olive gray (5Y 3/2) moist; 5 percent medium distinct light olive brown (2.5Y 5/6) iron concentrations; weak medium granular structure; firm, very hard, moderately sticky and moderately plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.0).  
 Bg—10 to 60 inches; (N 4/) silty clay, very dark gray (2.5Y 3/1) moist; 5 percent medium distinct light olive brown (2.5Y 5/6) iron concentrations; massive; firm, very hard, moderately sticky and moderately plastic; noneffervescent; neutral (pH 7.2).

### Range in Characteristics

*Soil moisture:*  
     *Soil moisture regime subclass:* typic  
     *Soil moisture regime class:* aquic  
     *Seasonal pattern:* moist throughout the year with peak periods from April through September  
*Mean annual soil temperature:* 38 to 42 degrees F.  
*Mean summer soil temperature:* 42 to 45 degrees F.

*Depth to diagnostic features:* 4 to 18 inches to redox concentrations; 4 to 18 inches to redox depletions with chroma of 2 or less; 8 to 18 inches to aquic conditions; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 20 to 60 inches or more

*Seasonal high water table:* April through September

*Depth to top:* 12 to 30 inches

*Particle-size control section (weighted average):*

*Clay content:* 40 to 50 percent

*Sand content:* 5 to 30 percent

*Rock fragment content:* 0 to 5 percent

*Oi horizon(s):*

*Texture:* peat

*Clay content:* 0 to 2 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* pH 5.1 to 6.0

*Organic matter content:* 70.0 to 95.0 percent

*Cation-exchange capacity:* 50.0 to 90.0 meq/100 grams

*Ag horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 1 or 2

*Texture:* clay, clay loam

*Clay content:* 35 to 50 percent

*Rock fragment content:* 0 to 2 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Reaction:* slightly acid or neutral

*Organic matter content:* 3.0 to 5.0 percent

*Cation-exchange capacity:* 20.0 to 40.0 meq/100 grams

*Bg horizon(s):*

*Hue:* 10YR, 2.5Y, N

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* N or 1

*Texture:* clay, silty clay

*Clay content:* 40 to 55 percent

*Rock fragment content:* 0 to 2 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* slightly acid or neutral

*Organic matter content:* 1.0 to 4.0 percent

*Cation-exchange capacity:* 25.0 to 55.0 meq/100 grams

## Dalerose Series

*Map unit(s):* DaE, CD

*Depth class:* very shallow to shallow

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* scarps

*Position on landform:* crest, head slope

*Parent material:* slope alluvium and residuum weathered from sandstone

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 3 to 25 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Loamy, mixed, superactive, mesic Lithic Haplustolls

**Typical Pedon**

*Map unit in which located:* Dalerose-Rock outcrop complex, 3 to 25 percent slopes

*Location in survey area:* Dalerose gravelly fine sandy loam; in an area of Dalerose-Rock outcrop complex, 3 to 25 percent slopes; in shrub cover; about 1,650 feet west and 2,500 feet south of the northeast corner of section 21, T. 34 S., R. 53 W.; USGS Dennis Canyon topographic quadrangle; 37 degrees, 4 minutes, 7.50 seconds north latitude; and 103 degrees, 21 minutes, 36.20 seconds west longitude; UTM 645,790 meters E., 4,103,758 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 5 inches; dark grayish brown (10YR 4/2) gravelly fine sandy loam, very dark brown (10YR 2/2) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; 20 percent gravel; strongly effervescent (5 percent calcium carbonate equivalent); slightly alkaline (pH 7.8); clear wavy boundary.

Bk—5 to 10 inches; grayish brown (10YR 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; massive; very friable, soft, nonsticky and nonplastic; 5 percent cobbles and 25 percent gravel; common medium lime coats on the undersides of rock fragments; violently effervescent (10 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt irregular boundary.

R—10 to 60 inches; unweathered bedrock; indurated; hard Dakota sandstone.

**Range in Characteristics***Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 55 degrees F.

*Mean summer soil temperature:* 68 to 74 degrees F.

*Depth to restrictive feature:* 6 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 6 to 20 inches to lithic contact; 0 to 10 inches to secondary carbonates; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 7 to 20 inches

*Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 40 to 70 percent

*Rock fragment content:* 0 to 35 percent

*A horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 5 to 18 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, and 0 to 5 percent cobbles

*Calcium carbonate equivalent:* 0 to 7 percent

*Reaction:* neutral to moderately alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 4.8 to 15.5 meq/100 grams

**Bk horizon(s):***Hue:* 10YR or 7.5YR*Value:* 4 to 7 dry, 3 to 6 moist*Chroma:* 2 or 3*Texture:* gravelly loam, gravelly sandy loam, loam*Clay content:* 5 to 18 percent*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, and 0 to 5 percent cobbles*Calcium carbonate equivalent:* 1 to 15 percent*Electrical conductivity:* 0 to 2 mmhos/cm*Reaction:* slightly or moderately alkaline*Organic matter content:* 0.5 to 1.0 percent*Cation-exchange capacity:* 4.0 to 10.0 meq/100 grams**Dargol Series***Map unit(s):* VD, DFV*Depth class:* moderately deep*Drainage class:* well drained*Slowest permeability:* .001 to .06 in./hr. (very slow)*Landform:* hills*Position on landform:* head slope, side slope*Parent material:* slope alluvium and residuum weathered from shale and siltstone*Elevation:* 7,500 to 9,000 feet (2,286 to 2,743 meters)*Slope:* 3 to 45 percent*Climatic data:**Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)*Frost-free period:* 70 to 100 days*Taxonomic class:* Fine, mixed, superactive, frigid Typic Haplustalfs**Typical Pedon***Map unit in which located:* Fuera-Dargol-Vamer complex, 10 to 45 percent slopes*Location in survey area:* Dargol loam; in an area of Fuera-Dargol-Vamer complex, 10 to 45 percent slopes; in forest land; about 1,640 feet west and 40 feet north of section 32, T. 34 S., R. 65 W.; USGS Valdez topographic quadrangle; 37 degrees, 2 minutes, 21.00 seconds north latitude; and 104 degrees, 41 minutes, 31.30 seconds west longitude; UTM 527,388 meters E., 4,099,255 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)*Surface fragments:* about 15 percent gravel, 4 percent cobbles, and 1 percent stones**Oe**—0 to 1 inch; slightly decomposed plant material; leaves, needles, and twigs.**E**—1 inch to 6 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; 5 percent cobbles and 5 percent stones; noneffervescent; moderately acid (pH 5.8); abrupt.**Bt1**—6 to 10 inches; grayish brown (10YR 5/2) clay, dark grayish brown (10YR 4/2) and grayish brown (10YR 5/2) crushed, moist; weak coarse prismatic structure, and moderate fine angular blocky structure; very firm, extremely hard, very sticky and very plastic; 45 percent clay films on all faces of peds; noneffervescent; slightly acid (pH 6.4); clear smooth boundary.



Bt2—10 to 29 inches; grayish brown (2.5Y 5/2) clay, olive brown (2.5Y 4/4) and grayish brown (2.5Y 5/2) crushed, moist; 42 percent clay; few fine faint mottles; moderate very fine subangular blocky structure; firm, very hard, very sticky and very plastic; 55 percent clay films on all faces of peds; 10 percent gravel; noneffervescent; slightly acid (pH 6.4); clear smooth boundary.

R—29 to 60 inches; unweathered bedrock; very weakly cemented; soft siltstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 48 to 52 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Depth to diagnostic features:* 20 to 40 inches to lithic contact; 0 to 2 inches to albic materials; 5 to 7 inches to the argillic horizon

*Thickness of the argillic horizon:* 16 to 33 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 55 percent

*Rock fragment content:* 5 to 15 percent

#### *E horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 to 7 dry and 3 to 5 moist

*Chroma:* 2 to 4

*Clay content:* 20 to 27 percent

*Rock fragment content:* 0 to 2 percent fine gravel, 0 to 3 percent medium and coarse gravel, 3 to 5 percent cobbles, and 2 to 5 percent stones

*Reaction:* slightly acid or moderately acid

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 16.6 to 22.3 meq/100 grams

#### *Bt1 horizon(s):*

*Hue:* 7.5YR or 10 YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 2 to 6

*Texture:* clay loam, silty clay, clay

*Clay content:* 35 to 55 percent

*Reaction:* slightly acid or moderately acid

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 26.7 to 41.3 meq/100 grams

#### *Bt2 horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 4 to 6

*Texture:* silty clay, clay

*Clay content:* 40 to 55 percent

*Rock fragment content:* 2 to 5 percent fine gravel, 3 to 7 percent medium and coarse gravel, 0 to 2 percent cobbles, and 0 to 1 percent stones



*Reaction:* slightly acid or moderately acid  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 26.4 to 40.2 meq/100 grams

## Davtone Series

*Map unit(s):* De, Dt, DH  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* drainageways, fans  
*Position on landform:* Rise, dip  
*Parent material:* alluvium derived from mixed sources  
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)  
*Slope:* 2 to 20 percent  
*Climatic data:*  
     *Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)  
     *Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.6 degrees C.)  
     *Frost-free period:* 60 to 75 days

*Taxonomic class:* Fine-loamy, mixed, superactive Pachic Argicryolls

### Typical Pedon

*Map unit in which located:* Davtone loam, 5 to 20 percent slopes

*Location in survey area:* Davtone loam; in an area of Davtone loam, 5 to 20 percent slopes; in rangeland; about 4.3 miles west of Hwy 12 off of Hell Canyon Trail in Duling Park; T. 33 S., R. 69 W.; USGS Stonewall topographic quadrangle; 37 degrees, 10 minutes, 3.50 seconds north latitude; and 105 degrees, 6 minutes, 19.80 seconds west longitude; UTM 490,633 meters E., 4,113,473 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 19 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; strong medium granular structure; friable, slightly hard, nonsticky and nonplastic; noneffervescent; neutral (pH 6.8); clear wavy boundary.
- AB—19 to 30 inches; reddish brown (5YR 4/4) sandy clay loam, dark reddish brown (5YR 3/3) moist; weak fine subangular blocky structure; friable, soft, slightly sticky and slightly plastic; 2 percent cobbles and 10 percent gravel; noneffervescent; neutral (pH 7.0); clear wavy boundary.
- Bt1—30 to 41 inches; reddish brown (5YR 5/3) cobbly sandy clay loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 45 percent continuous distinct clay films on faces of peds; 10 percent gravel and 20 percent cobbles; noneffervescent; neutral (pH 7.0); clear wavy boundary.
- Bt2—41 to 48 inches; reddish brown (5YR 5/3) gravelly sandy clay loam, reddish brown (5YR 4/3) moist; moderate medium subangular blocky structure; friable, hard, moderately sticky and moderately plastic; 55 percent continuous distinct clay films on faces of peds; 5 percent cobbles and 10 percent gravel; noneffervescent; neutral (pH 7.2); clear wavy boundary.
- C—48 to 72 inches; yellowish red (5YR 5/6) very gravelly sandy loam, dark reddish brown (5YR 3/4) moist; massive; very friable, soft, nonsticky and nonplastic; 15 percent cobbles and 35 percent gravel; noneffervescent; neutral (pH 7.2).

**Range in Characteristics***Soil moisture:**Soil moisture regime subclass:* ustic*Soil moisture regime class:* udic*Seasonal pattern:* moist from April through August*Mean annual soil temperature:* 39 to 44 degrees F.*Mean summer soil temperature:* 55 to 57 degrees F.*Depth to diagnostic features:* 16 to 31 inches to the argillic horizon; 0 inches to the mollic epipedon*Thickness of the argillic horizon:* 16 to 28 inches*Thickness of the mollic epipedon:* 16 to 40 inches*Particle-size control section (weighted average):**Clay content:* 20 to 30 percent*Sand content:* 35 to 60 percent*Rock fragment content:* 15 to 35 percent*A horizon(s):**Hue:* 7.5YR or 10YR*Value:* 3 or 4 dry, 2 or 3 moist*Chroma:* 2 or 3*Clay content:* 10 to 25 percent*Rock fragment content:* 0 to 15 percent total: 0 to 6 percent fine gravel and 0 to 9 percent medium and coarse gravel*Reaction:* slightly acid or neutral (pH 6.1 to 7.3)*Organic matter content:* 4.0 to 6.0 percent*Cation-exchange capacity:* 9.4 to 21.8 meq/100 grams*Bt horizon(s):**Hue:* 10R to 5YR*Value:* 3 to 5 dry, 3 or 4 moist*Chroma:* 2 or 3*Texture:* cobbly sandy clay loam, gravelly clay loam*Clay content:* 20 to 35 percent*Rock fragment content:* 15 to 35 percent total: 2 to 10 percent fine gravel, 3 to 15 percent medium and coarse gravel, 5 to 20 percent cobbles, and 0 to 5 percent stones*Organic matter content:* 0.5 to 1.0 percent*Cation-exchange capacity:* 14.2 to 27.5 meq/100 grams*C horizon(s):**Hue:* 10R to 5YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 to 6*Texture:* very gravelly sandy loam*Clay content:* 15 to 20 percent*Rock fragment content:* 35 to 60 percent total: 5 to 15 percent fine gravel, 15 to 25 percent medium and coarse gravel, 10 to 20 percent cobbles, and 0 to 5 percent stones*Reaction:* slightly acid or neutral*Organic matter content:* 0.0 to 0.5 percent*Cation-exchange capacity:* 10.9 to 16.2 meq/100 grams

## Demayo Series

*Map unit(s):* Dm, Ec

*Depth class:* shallow

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* cinder cones, lava plateaus

*Position on landform:* side slope

*Parent material:* residuum weathered from basalt

*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Slope:* 1 to 30 percent

*Climatic data:*

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 150 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, mesic Lithic Haplustolls

### Typical Pedon

*Map unit in which located:* Eguaje-Demayo complex, 1 to 12 percent slopes, stony

*Location in survey area:* Demayo very cobbly clay loam; in an area of Eguaje-Demayo complex, 1 to 12 percent slopes, stony; in rangeland; about 950 feet east and 1,600 feet south of the northwest corner of section 20, T. 33 S., R. 52 W.; USGS Kim South topographic quadrangle; 37 degrees, 9 minutes, 33.00 seconds north latitude; and 103 degrees, 15 minutes, 54.30 seconds west longitude; UTM 654,050 meters E., 4,113,943 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 10 percent cobbles and 5 percent stones

A—0 to 5 inches; very dark grayish brown (10YR 3/2), very cobbly clay loam, very dark brown (10YR 2/2), moist; 31 percent clay; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine and fine roots throughout; 10 percent gravel, 10 percent stones, and 20 percent cobbles; noneffervescent; neutral (pH 7.0); clear smooth boundary.

Bw—5 to 12 inches; very dark grayish brown (10YR 3/2), very cobbly clay loam, very dark brown (10YR 2/2), moist; 32 percent clay; moderate fine and medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; common very fine and fine roots throughout; 10 percent patchy distinct clay films on faces of peds; 5 percent stones, 20 percent gravel, and 20 percent cobbles; noneffervescent; slightly alkaline (pH 7.4); abrupt irregular boundary.

R—12 to 60 inches; unweathered bedrock; indurated; hard fractured basalt with argillic material in the cracks.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 55 degrees F.

*Mean summer soil temperature:* 68 to 73 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 0 inches to the mollic epipedon; 10 to 20 inches to lithic contact

*Thickness of the mollic epipedon:* 7 to 20 inches

*Particle-size control section (weighted average):**Clay content:* 25 to 35 percent*Sand content:* 15 to 35 percent*Rock fragment content:* 35 to 60 percent*A horizon(s):**Hue:* 7.5YR or 10YR*Value:* 2 to 4 dry, 2 or 3 moist*Chroma:* 2 or 3*Clay content:* 27 to 35 percent*Rock fragment content:* 35 to 50 percent total: 2 to 5 percent fine gravel, 8 to 15 percent medium and coarse gravel, 20 to 25 percent cobbles, and 5 to 10 percent stones*Reaction:* neutral or slightly alkaline*Organic matter content:* 1.0 to 3.0 percent*Cation-exchange capacity:* 21.7 to 28.7 meq/100 grams*Bw horizon(s):**Hue:* 7.5YR or 10YR*Value:* 3 to 5 dry, 2 to 4 moist*Chroma:* 2 or 3*Texture:* very cobbly clay loam, very gravelly clay loam*Clay content:* 27 to 35 percent*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, 15 to 25 percent cobbles, and 1 to 5 percent stones*Reaction:* neutral or slightly alkaline*Organic matter content:* 1.0 to 3.0 percent*Cation-exchange capacity:* 21.7 to 28.7 meq/100 grams**Des Moines Series***Map unit(s):* Ds*Depth class:* very deep*Drainage class:* well drained*Slowest permeability:* .06 to 0.2 in./hr. (slow)*Landform:* lava plateaus, mountain slopes*Position on landform:* mountaintop*Parent material:* colluvium and residuum weathered from basalt*Elevation:* 7,000 to 8,000 feet (2,134 to 2,438 meters)*Slope:* 15 to 50 percent*Climatic data:**Mean annual precipitation:* 18 to 20 inches (457 to 508 millimeters)*Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)*Frost-free period:* 90 to 110 days*Taxonomic class:* Clayey-skeletal, smectitic, frigid Pachic Argiustolls**Typical Pedon***Map unit in which located:* Des Moines-Rock outcrop complex, 15 to 50 percent slopes*Location in survey area:* Des Moines; in an area of Des Moines-Rock outcrop complex, 15 to 50 percent slopes; in forest land; about 800 feet east and 300 feet north of the southwest corner of section 17, T. 35 S., R. 58 W.; USGS Alps Mesa

topographic quadrangle; 36 degrees, 59 minutes, 53.40 seconds north latitude; and 103 degrees, 56 minutes, 15.50 seconds west longitude; UTM 594,529 meters E., 4,095,196 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 35 percent gravel, 40 percent cobbles, and 2 percent stones

- A—0 to 4 inches; very dark grayish brown (10YR 3/2) cobbly silt loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; common very fine pores; 20 percent gravel, 20 percent cobbles, and 20 percent stones; neutral; clear smooth boundary.
- BA—4 to 18 inches; very dark grayish brown (10YR 3/2) very cobbly silty clay loam, very dark gray (10YR 3/1) moist; Moderate fine subangular blocky structure; hard, very friable, sticky and plastic; many fine roots; many very fine pores; 29 percent gravel, 25 percent cobbles, and 5 percent stones; neutral; abrupt irregular boundary.
- Bt—18 to 36 inches; dark grayish brown (10YR 4/2) very stony silty clay, very dark grayish brown (10YR 3/2) moist; strong fine angular and subangular blocky structure; very hard, firm, sticky and plastic; many distinct clay films on all faces of peds; few fine and very fine roots; few very fine pores; 14 percent gravel, 15 percent cobbles, and 30 percent stones; neutral; abrupt irregular boundary.
- C—36 to 48 inches; light yellowish brown (10YR 6/4) extremely stony sandy clay loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine and very fine pores; 30 percent gravel, 30 percent cobbles, and 40 percent stones; slightly effervescent; slightly alkaline.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 59 to 64 degrees F.

*Depth to lithic contact:* 40 or more inches

*Depth to diagnostic features:* 10 to 20 inches to the argillic horizon; 30 to 60 inches to secondary carbonates

*Thickness of the mollic epipedon:* 20 to 36 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 25 percent

*Rock fragment content:* 35 to 60 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 2 through 4 dry, 1 through 3 moist

*Chroma:* 1 through 3

*Clay content:* 18 to 27 percent

*Rock fragment content:* 2 to 5 percent fine gravel, 3 to 10 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* neutral or slightly acid

*Organic matter content:* 2.0 to 4.0 percent

*Cation-exchange capacity:* 16.2 to 28.9 meq/100 grams

**Bt horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 3 through 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture of the fine-earth fraction:* clay, silty clay or silty clay loam

*Clay content:* 40 to 50 percent

*Rock fragment content:* 0 to 5 percent fine gravel, 5 to 10 percent medium and coarse gravel, 10 to 15 percent cobbles, and 20 to 30 percent stones

*Reaction:* neutral or slightly acid

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 20.4 to 31.0 meq/100 grams

**C horizon(s):**

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture of the fine-earth fraction:* sandy clay loam or loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 5 to 10 percent medium and coarse gravel, 15 to 20 percent cobbles, and 35 to 50 percent stones

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 3.7 to 18.2 meq/100 grams

## **Eguaje Series**

*Map unit(s):* Ec

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* lava plateaus

*Parent material:* colluvium and residuum weathered from basalt

*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Slope:* 1 to 12 percent

*Climatic data:*

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 150 days

*Taxonomic class:* Clayey-skeletal, smectitic, mesic Calcic Argiustolls

### **Typical Pedon**

*Map unit in which located:* Eguaje-Demayo complex, 1 to 12 percent slopes, stony

*Location in survey area:* Eguaje cobbly clay loam; in an area of Eguaje-Demayo complex, 1 to 12 percent slopes, stony; in rangeland; about 500 feet west and 1,050 feet south of the northeast corner of section 20, T. 33 S., R. 52 W.; USGS Kim South topographic quadrangle; 37 degrees, 9 minutes, 30.30 seconds north latitude; and 103 degrees, 16 minutes, 41.90 seconds west longitude; UTM 652,877 meters E., 4,113,833 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 7 percent basalt stones

A—0 to 5 inches; dark grayish brown (10YR 4/2) cobbly clay loam, very dark brown



- (10YR 2/2) moist; moderate fine and medium granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; 6 percent stones, 10 percent gravel, and 10 percent cobbles; noneffervescent; neutral (pH 7.2); clear smooth boundary.
- Bt—5 to 14 inches; brown (10YR 4/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; many very fine and fine roots throughout; 40 percent distinct clay films on all faces of peds; 20 percent gravel and 20 percent cobbles; noneffervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
- Btk1—14 to 19 inches; brown (10YR 5/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; firm, hard, moderately sticky and moderately plastic; 10 percent distinct clay films on all faces of peds; 5 percent medium irregular carbonate masses throughout; 5 percent stones, 10 percent cobbles, and 30 percent gravel; violently effervescent (17 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual smooth boundary.
- Btk2—19 to 28 inches; pale brown (10YR 6/3) very gravelly clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; friable, slightly hard, moderately sticky and moderately plastic; few very fine roots throughout; 5 percent faint clay films on all faces of peds; 5 percent medium irregular carbonate masses throughout; 20 percent cobbles and 35 percent gravel; violently effervescent (34 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Bk—28 to 60 inches; very pale brown (10YR 7/3) very cobbly clay loam, brown (10YR 5/3) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; few very fine roots throughout; 25 percent cobbles and 30 percent stones; violently effervescent (40 percent calcium carbonate equivalent); moderately alkaline (pH 8.4).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 68 to 72 degrees F.

*Depth to diagnostic features:* 10 to 25 inches to the calcic horizon; 3 to 7 inches to the argillic horizon; 10 to 19 inches to secondary carbonate; 0 inches to the mollic epipedon

*Depth to the base of the argillic horizon:* 20 to 40 inches

*Thickness of the mollic epipedon:* 7 to 20 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 45 percent

*Rock fragment content:* 35 to 70 percent

#### *A horizon(s):*

*Hue:* 2.5Y through 7.5YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 27 to 35 percent

*Rock fragment content:* 1 to 4 percent fine gravel, 3 to 10 percent medium and coarse gravel, 9 to 15 percent cobbles, and 2 to 6 percent stones

*Reaction:* neutral or slightly alkaline



*Organic matter content:* 1.0 to 3.0 percent  
*Cation-exchange capacity:* 18.3 to 32.8 meq/100 grams

**Bt horizon(s):**

*Hue:* 2.5Y through 7.5YR  
*Value:* 3 to 5 dry, 2 to 4 moist  
*Chroma:* 2 or 3  
*Texture:* very cobbly clay, very cobbly clay loam  
*Clay content:* 35 to 50 percent  
*Rock fragment content:* 35 to 50 percent total: 10 to 15 percent fine gravel, 10 to 15 percent medium and coarse gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones  
*Calcium carbonate equivalent:* 0 to 5 percent  
*Reaction:* neutral or slightly alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 20.0 to 45.0 meq/100 grams

**Btk horizon(s):**

*Hue:* 2.5Y through 7.5YR  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 3 or 4  
*Texture:* very gravelly clay, very gravelly clay loam, very cobbly clay loam  
*Clay content:* 35 to 50 percent  
*Rock fragment content:* 35 to 50 percent total: 10 to 15 percent fine gravel, 15 to 25 percent medium and coarse gravel, 7 to 20 percent cobbles, and 0 to 5 percent stones  
*Calcium carbonate equivalent:* 15 to 35 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 15.0 to 30.0 meq/100 grams

**Bk horizon(s):**

*Hue:* 2.5Y through 7.5YR  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 3 to 6  
*Texture:* very cobbly clay loam, very cobbly loam  
*Clay content:* 20 to 35 percent  
*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, 20 to 25 percent cobbles, and 0 to 5 percent stones  
*Calcium carbonate equivalent:* 20 to 45 percent  
*Gypsum content:* 0 to 2 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 10.0 to 20.0 meq/100 grams

## **Ellicott Series**

*Map unit(s):* EL  
*Depth class:* very deep  
*Drainage class:* somewhat excessively drained  
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)  
*Landform:* flood plains  
*Position on landform:* tread  
*Parent material:* sandy alluvium

*Elevation:* 5,500 to 6,000 feet (1,676 to 1,829 meters)

*Slope:* 0 to 2 percent

*Climatic data:*

*Mean annual precipitation:* 13 to 16 inches (330 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Sandy, mixed, mesic Ustic Torrfluvents

### Typical Pedon

*Map unit in which located:* Ellicott series-Las Animas series complex, 0 to 2 percent slopes

*Location in survey area:* Ellicott fine sandy loam; in an area of Ellicott series-Las Animas series complex, 0 to 2 percent slopes; in forest land; about 2,400 feet west and 2,300 feet north of the southeast corner of section 23, T. 32 S., R. 63 W.; USGS Trinidad East topographic quadrangle; 37 degrees, 14 minutes, 24.70 seconds north latitude; and 104 degrees, 24 minutes, 59.40 seconds west longitude; UTM 551,753 meters E., 4,121,679 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 7 inches; brown (10YR 5/3), fine sandy loam, dark brown (10YR 3/3) and brown (10YR 4/3) crushed, moist; 8 percent clay; weak fine granular structure, and weak coarse platy structure; very friable, soft, nonsticky and nonplastic; many fine and medium roots throughout; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- C1—7 to 14 inches; brown (10YR 5/3), fine sandy loam, brown (10YR 4/3), moist; weak medium subangular blocky structure; very friable, soft, nonsticky and nonplastic; many fine to coarse roots throughout; noneffervescent; slightly alkaline (pH 7.5); abrupt smooth boundary.
- C2—14 to 21 inches; pale brown (10YR 6/3), loamy coarse sand, brown (10YR 5/3), moist; single grain; loose, nonsticky and nonplastic; common fine to coarse roots throughout; 12 percent gravel; very slightly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- C3—21 to 31 inches; 50 percent pale brown (10YR 6/3) and 50 percent brown (10YR 5/3), loamy fine sand, very fine sandy loam, 50 percent brown (10YR 4/3) and 50 percent very dark grayish brown (10YR 3/2), moist; moderate fine and medium subangular blocky structure; friable, slightly hard, nonsticky and nonplastic; common fine and medium roots throughout; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
- C4—31 to 39 inches; brown (10YR 5/3), sand, brown (10YR 4/3), moist; single grain; loose, nonsticky and nonplastic; few fine and medium roots throughout; noneffervescent; slightly alkaline (pH 7.6); gradual smooth boundary.
- 2C5—39 to 62 inches; brown (10YR 5/3), stratified very gravelly sand, brown (10YR 4/3), moist; single grain; loose, nonsticky and nonplastic; 50 percent gravel; noneffervescent; slightly alkaline (pH 7.8).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* Intermittently moist from April through August, dry from November through February

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 68 to 72 degrees F.

*Depth to diagnostic features:* 30 to 50 inches to lithological discontinuity; 0 inches to the ochric epipedon

*Surface fragments:* 0 to 5 percent gravel

*Seasonal high water table:* 5 to 7 feet

*Particle-size control section (weighted average):*

*Clay content:* 1 to 10 percent

*Sand content:* 65 to 90 percent

*Rock fragment content:* 0 to 15 percent in the upper part of the horizon, and 35 to 60 percent in the lower part

A horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry; 2 to 4 moist

*Chroma:* 1 to 3

*Texture:* fine sandy loam

*Clay content:* 6 to 18 percent

*Sand content:* 60 to 75 percent

*Rock fragment content:* 0 to 5 percent gravel

*Reaction:* pH 6.6 to 7.8

*Organic matter content:* 0.5 to 2.0 percent

*Base saturation:* 80 to 100 percent

*Cation-exchange capacity:* 5.0 to 15.0 meq/100 grams

C1 horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* loamy fine sand, fine sandy loam

*Clay content:* 5 to 18 percent

*Sand content:* 65 to 85 percent

*Rock fragment content:* 0 to 9 percent gravel

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* pH 7.4 to 7.8

*Organic matter content:* 0.0 to 1.0 percent

*Base saturation:* 80 to 100 percent

*Cation-exchange capacity:* 2.0 to 15.0 meq/100 grams

C2 horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* loamy coarse sand, loamy fine sand

*Clay content:* 0 to 10 percent

*Sand content:* 75 to 90 percent

*Rock fragment content:* 0 to 6 percent fine gravel, 0 to 9 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* pH 7.4 to 7.8

*Organic matter content:* 0.0 to 1.0 percent

*Base saturation:* 70 to 100 percent

*Cation-exchange capacity:* 1.0 to 15.0 meq/100 grams

C3 horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* stratified fine sandy loam to loamy fine sand

*Clay content:* 2 to 15 percent

*Sand content:* 70 to 90 percent

*Rock fragment content:* 0 to 6 percent fine gravel, 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* pH 7.4 to 7.8

*Organic matter content:* 0.0 to 1.0 percent

*Base saturation:* 70 to 100 percent

*Cation-exchange capacity:* 1.0 to 15.0 meq/100 grams

**C4 horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 2 or 3

*Texture:* sand

*Clay content:* 0 to 2 percent

*Sand content:* 90 to 95 percent

*Rock fragment content:* 0 to 6 percent fine gravel, 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* pH 7.4 to 7.8

*Organic matter content:* 0.0 to 1.0 percent

*Base saturation:* 70 to 100 percent

*Cation-exchange capacity:* 0.0 to 5.0 meq/100 grams

**2C5 horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 4 to 6 moist

*Chroma:* 2 or 3 moist

*Texture:* very gravelly coarse sand, very gravelly sand

*Clay content:* 0 to 2 percent

*Sand content:* 90 to 98 percent

*Rock fragment content:* 15 to 27 percent fine gravel, 20 to 28 percent medium and coarse gravel, and 0 to 5 percent cobbles

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* pH 6.6 to 7.8

*Organic matter content:* 0.0 to 0.5 percent

*Base saturation:* 60 to 100 percent

*Cation-exchange capacity:* 0.0 to 5.0 meq/100 grams

## **Embargo Series**

*Map unit(s):* ES

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* lava plateaus

*Position on landform:* dip

*Parent material:* alluvium and residuum weathered from basalt

*Elevation:* 9,000 to 9,700 feet (2,743 to 2,957 meters)

*Slope:* 1 to 9 percent

*Climatic data:**Mean annual precipitation:* 22 to 26 inches (559 to 660 millimeters)*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.6 degrees C.)*Frost-free period:* 70 to 80 days*Taxonomic class:* Clayey-skeletal, smectitic Ustic Argicryolls**Typical Pedon***Map unit in which located:* Embargo-Schwacheim complex, 1 to 9 percent slopes, stony*Location in survey area:* Embargo cobbly silt loam; in an area of Embargo-Schwacheim complex, 1 to 9 percent slopes, stony; in rangeland; an unsectionalized area, 2,700 feet south-southeast of the gate at the neck separating two parts of Fisher Peak Mesa, T. 34 S., R. 63 W.; USGS Fishers Peak topographic quadrangle; 37 degrees, 3 minutes, 27.70 seconds north latitude; and 104 degrees, 26 minutes, 30.00 seconds west longitude; UTM 549,657 meters E., 4,101,417 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)*Surface fragments:* about 2 percent stones and cobbles

A—0 to 7 inches; very dark gray (10YR 3/1) cobbly silt loam, very dark brown (10YR 2/2) moist and crushed; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; common fine roots and few coarse roots throughout and many very fine roots; 5 percent gravel and 10 percent cobbles; noneffervescent; slightly acid (pH 6.2); abrupt smooth boundary.

AB—7 to 14 inches; brown (7.5YR 4/2) very cobbly silt loam, dark brown (7.5YR 3/2) moist and crushed; weak very fine subangular blocky structure, and moderate medium granular structure; friable, slightly hard, slightly sticky and slightly plastic; few medium roots throughout and many very fine roots; 15 percent gravel and 40 percent cobbles; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.

Bt1—14 to 20 inches; brown (7.5YR 5/3) very cobbly clay loam, brown (7.5YR 4/3) moist; moderate fine subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few medium roots throughout and many very fine roots; 5 percent clay films on vertical faces of peds; 15 percent gravel and 35 percent cobbles; noneffervescent; neutral (pH 6.6); clear smooth boundary.

Bt2—20 to 25 inches; dark reddish gray (5YR 4/2) extremely gravelly clay loam, dark reddish brown (5YR 3/2) moist; strong fine and medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few medium roots throughout and common very fine roots; 3 percent nonintersecting slickensides on vertical faces of peds and 25 percent clay films on all faces of peds; 20 percent cobbles and 45 percent gravel; noneffervescent; neutral (pH 6.7); abrupt irregular boundary.

R—25 to 60 inches; unweathered bedrock; indurated; hard fractured basalt.

**Range in Characteristics***Soil moisture:**Soil moisture regime subclass:* ustic*Soil moisture regime class:* udic*Seasonal pattern:* moist from April through August*Mean annual soil temperature:* 39 to 42 degrees F.*Mean summer soil temperature:* 44 to 46 degrees F.*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Depth to diagnostic features:* 20 to 40 inches to lithic contact; 10 to 15 inches to the argillic horizon; 0 inches to the mollic epipedon

*Thickness of diagnostic feature:* 7 to 15 inches to the mollic epipedon

*Depth to the base of the argillic horizon:* 20 to 40 inches

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 15 to 35 percent

*Rock fragment content:* 35 to 70 percent

A horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 20 to 27 percent

*Rock fragment content:* 15 to 35 percent total: 1 to 5 percent fine gravel, 4 to 10 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid to neutral

*Organic matter content:* 4.0 to 6.0 percent

*Cation-exchange capacity:* 10.0 to 25.0 meq/100 grams

AB horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 20 to 27 percent

*Rock fragment content:* 35 to 60 percent total: 1 to 5 percent fine gravel, 4 to 10 percent medium and coarse gravel, 30 to 40 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid to neutral

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 10.0 to 25.0 meq/100 grams

Bt horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* very cobbly clay loam, extremely cobbly clay, extremely cobbly clay loam

*Clay content:* 35 to 50 percent

*Rock fragment content:* 35 to 70 percent total: 2 to 5 percent fine gravel, 8 to 20 percent medium and coarse gravel, 25 to 50 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid to neutral

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 20.0 to 40.0 meq/100 grams

## Fallriver Series

*Map unit(s):* LR, Bk

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* mountain slopes

*Position on landform:* mountainflank

*Parent material:* colluvium and till derived from granodiorite



*Elevation:* 9,500 to 12,000 feet (2,896 to 3,658 meters)

*Slope:* 30 to 60 percent

*Climatic data:*

*Mean annual precipitation:* 25 to 35 inches (635 to 889 millimeters)

*Mean annual air temperature:* 34 to 38 degrees F. (1.0 to 3.4 degrees C.)

*Frost-free period:* 40 to 50 days

*Taxonomic class:* Loamy-skeletal, isotic Typic Dystrocrypts

### Typical Pedon

*Map unit in which located:* Fallriver extremely stony sandy loam, 30 to 60 percent slopes

*Location in survey area:* Fallriver extremely stony sandy loam; in an area of Fallriver extremely stony sandy loam, 30 to 60 percent slopes; in forest land; along Duling Creek trail about 0.65 mile southwest of Duling Park and 1.0 mile on the trail from the south exit of Duling Park just south of Duling Creek; T. 33 S., R. 69 W.; USGS Stonewall topographic quadrangle; 37 degrees, 9 minutes, 40.30 seconds north latitude; and 105 degrees, 7 minutes, 0.30 seconds west longitude; UTM 489,634 meters E., 4,112,761 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 40 percent gravel, 15 percent cobbles, and 15 percent stones

Oe—0 to 2 inches; moderately decomposed plant material; needles, twigs, moss, and lichens.

E—2 to 15 inches; light gray (10YR 7/2) extremely stony sandy loam, brown (10YR 5/3) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; many fine to coarse roots; 20 percent stones, 15 percent cobbles, and 30 percent gravel; noneffervescent; very strongly acid (pH 5.0); gradual smooth boundary.

Bw—15 to 30 inches; very pale brown (10YR 7/3) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; very friable, soft, nonsticky and nonplastic; many fine to coarse roots; 19 percent cobbles and 40 percent gravel; noneffervescent; very strongly acid (pH 4.8); gradual smooth boundary.

BC—30 to 70 inches; very pale brown (10YR 7/3) very gravelly sandy loam, brown (10YR 5/3) moist; weak coarse subangular blocky structure; loose, nonsticky and nonplastic; few fine and medium roots; 5 percent stones, 10 percent cobbles, and 35 percent gravel; noneffervescent; very strongly acid (pH 4.6).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist continuously with peak periods from April through August

*Mean annual soil temperature:* 35 to 38 degrees F.

*Mean summer soil temperature:* 38 to 42 degrees F.

*Depth to diagnostic features:* 0 to 2 inches to the albic horizon; 10 to 23 inches to the cambic horizon

*Base saturation:* 20 to 50 percent in the upper 30 inches

*Particle-size control section (weighted average):*

*Clay content:* 8 to 18 percent

*Sand content:* 55 to 75 percent

*Rock fragment content:* 40 to 60 percent



**E horizon(s):***Hue:* 7.5YR or 10YR*Value:* 6 or 7 dry, 4 or 5 moist*Chroma:* 2 or 3*Clay content:* 8 to 18 percent*Rock fragment content:* 5 to 10 percent fine gravel, 20 to 25 percent medium and coarse gravel, 20 to 25 percent cobbles, and 15 to 15 percent stones*Reaction:* very strongly acid or strongly acid*Organic matter content:* 0.5 to 1.0 percent**Bw horizon(s):***Hue:* 7.5YR or 10YR*Value:* 6 or 7 dry, 4 or 5 moist*Chroma:* 3 to 6*Clay content:* 8 to 18 percent*Rock fragment content:* 5 to 15 percent fine gravel, 20 to 25 percent medium and coarse gravel, 10 to 19 percent cobbles, and 0 to 1 percent stones*Reaction:* very strongly acid or strongly acid*Organic matter content:* 0.0 to 0.5 percent*Base saturation:* 20 to 50 percent**BC horizon(s):***Hue:* 7.5YR or 10YR*Value:* 6 or 7 dry, 4 or 5 moist*Chroma:* 3 or 4*Clay content:* 3 to 18 percent*Rock fragment content:* 6 to 13 percent fine gravel, 20 to 25 percent medium and coarse gravel, 8 to 15 percent cobbles, and 1 to 7 percent stones*Reaction:* very strongly acid or strongly acid*Organic matter content:* 0.0 to 0.5 percent*Base saturation:* 20 to 50 percent

*\*Note:* Some pedons have a few lamella of sandy clay loam.

**Feterita Series***Map unit(s):* Dv*Depth class:* very deep*Drainage class:* moderately well drained*Slowest permeability:* .06 to 0.2 in./hr. (slow)*Landform:* swales*Position on landform:* talf*Parent material:* clayey alluvium derived from sandstone and shale*Elevation:* 5,000 to 6,500 feet (1,525 to 1,983 meters)*Slope:* 0 to 1 percent*Climatic data:**Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.5 degrees C.)*Frost-free period:* 135 to 155 days*Taxonomic class:* Fine, smectitic, mesic Aridic Epiaquerts**Typical Pedon***Map unit in which located:* Feterita silt loam, 0 to 2 percent slopes

*Location in survey area:* Feterita silt loam; in an area of Feterita silt loam, 0 to 2 percent slopes; about 750 feet south and 1,600 feet west of the northeast corner of section 15, T. 32 S., R. 55 W.; USGS Villegreen topographic quadrangle; 37 degrees, 15 minutes, 28.60 seconds north latitude; and 103 degrees, 33 minutes, 34.80 seconds west longitude; UTM 627,726 meters E., 4,124,460 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 3 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; noneffervescent; neutral (pH 7.2); abrupt smooth boundary.
- Bt1—3 to 8 inches; very dark grayish brown (10YR 3/2) silty clay loam, gray (10YR 5/1) dry; weak fine prismatic structure parting to strong fine and medium subangular blocky structure; friable, hard, moderately sticky and moderately plastic; many very fine and fine roots; 35 percent distinct clay films on all faces of peds; strongly effervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- Bt2—8 to 21 inches; very dark grayish brown (10YR 3/2) silty clay, gray (10YR 5/1) dry; moderate medium prismatic structure parting to strong medium angular blocky structure; very firm, extremely hard, very sticky and very plastic; common very fine and fine roots; 45 percent distinct clay films on all faces of peds; 3 percent fine distinct irregular dark brown (7.5YR 3/4) masses of oxidized iron; strongly effervescent; slightly alkaline (pH 7.8); gradual smooth boundary.
- Btk—21 to 35 inches; dark grayish brown (10YR 4/2) silty clay, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; few very fine roots; 30 percent distinct clay films on all faces of peds; 10 percent fine distinct irregular dark brown (7.5YR 3/4) masses of oxidized iron; 1 percent fine distinct irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.
- Bk—35 to 60 inches; dark grayish brown (10YR 4/2) silty clay loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few fine roots; 10 percent fine distinct irregular dark brown (7.5YR 3/4) masses of oxidized iron; 1 percent fine distinct irregular carbonate masses throughout; 2 percent gravel; violently effervescent; moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* aquic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 68 to 73 degrees F.

*Depth to diagnostic features:* 3 to 6 inches to the argillic horizon; 0 inches to the mollic epipedon

*Thickness of the argillic horizon:* 25 to 40 inches

*Thickness of the mollic epipedon:* 10 to 30 inches

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 20 percent

*Rock fragment content:* 0 to 5 percent

*A horizon(s):*

*Hue:* 10YR

*Value:* 4 or 5 dry; 2 or 3 moist  
*Chroma:* 1 or 2  
*Texture:* silt loam  
*Clay content:* 18 to 27 percent  
*Reaction:* neutral or slightly alkaline  
*Organic matter content:* 2.0 to 4.0 percent  
*Cation-exchange capacity:* 16.2 to 28.9 meq/100 grams

**Bt1 horizon(s):**

*Hue:* 10YR  
*Value:* 4 or 5 dry; 2 to 4 moist  
*Chroma:* 1 to 3  
*Texture:* silty clay, silty clay loam, clay  
*Clay content:* 35 to 50 percent  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 2.0 to 4.0 percent  
*Cation-exchange capacity:* 28.7 to 49.0 meq/100 grams

**Btk horizon(s):**

*Hue:* 10YR  
*Value:* 5 or 6 dry; 4 or 5 moist  
*Chroma:* 1 to 3  
*Texture:* silty clay loam, silty clay, clay  
*Clay content:* 35 to 50 percent  
*Calcium carbonate equivalent:* 3 to 10 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Organic matter:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 18.2 to 39.0 meq/100 grams

**Bk horizon(s):**

*Hue:* 10YR  
*Value:* 5 or 6 dry; 4 or 5 moist  
*Chroma:* 1 to 3  
*Texture:* silty clay loam, clay loam  
*Clay content:* 27 to 35 percent  
*Rock fragment content:* 0 to 5 percent  
*Calcium carbonate equivalent:* 10 to 15 percent  
*Gypsum content:* 0 to 2 percent  
*Electrical conductivity:* 0 to 8 mmhos/cm  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 4.8 to 22.8 meq/100 grams

## **Fishers Series**

*Map unit(s):* FW, Fp  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* fans, mountain slopes  
*Position on landform:* mountain flank, rise  
*Parent material:* colluvium derived from basalt  
*Elevation:* 7,800 to 9,000 feet (2,377 to 2,743 meters)  
*Slope:* 5 to 45 percent

*Climatic data:*

*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)

*Mean annual air temperature:* 42 to 44 degrees F. (5.6 to 6.7 degrees C.)

*Frost-free period:* 60 to 90 days

*Taxonomic class:* Clayey-skeletal, smectitic, frigid Typic Haplustalfs

**Typical Pedon**

*Map unit in which located:* Fishers very cobbly loam, 15 to 45 percent slopes, very stony

*Location in survey area:* Fishers very cobbly loam; in an area of Fishers very cobbly loam, 15 to 45 percent slopes, very stony; an unsectionalized area about 3,700 feet west and 1,700 feet south of the southeast corner of section 9, T. 34 S., R. 63 W.; USGS Fishers Peak topographic quadrangle; 37 degrees, 4 minutes, 53.50 seconds north latitude; and 104 degrees, 27 minutes, 44.80 seconds west longitude; UTM 547,779 meters E., 4,104,052 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 3 percent stones and 15 percent cobbles

Oe—0 to 1 inch; moderately decomposed plant material and partially decomposed organic matter; litter consists of oak and locust leaves.

A1—1 inch to 5 inches; very dark gray (10YR 3/1) very cobbly loam, black (10YR 2/1) moist; strong fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many fine and medium roots; 15 percent cobbles and 25 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

A2—5 to 9 inches; dark gray (10YR 4/1) very cobbly loam, very dark gray (10YR 3/1) moist; strong very fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many fine and medium roots; 15 percent cobbles and 25 percent gravel; neutral (pH 6.6); clear wavy boundary.

E—9 to 14 inches; pale brown (10YR 6/3) very cobbly loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many fine to coarse roots; 20 percent cobbles and 30 percent gravel; slightly acid (pH 6.2); abrupt wavy boundary.

Bt1—14 to 19 inches; brown (7.5YR 5/3) very gravelly clay loam, brown (7.5YR 4/3) moist; moderate fine subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few fine to coarse roots; 35 percent clay films on all faces of peds; 10 percent cobbles and 30 percent gravel; slightly acid (pH 6.4); clear smooth boundary.

Bt2—19 to 36 inches; brown (7.5YR 5/2) very gravelly clay, brown (7.5YR 4/2) moist; moderate medium and coarse subangular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; few fine to coarse roots; 45 percent clay films on all faces of peds; 15 percent cobbles and 30 percent gravel; slightly acid (pH 6.4); clear wavy boundary.

Bt3—36 to 47 inches; brown (10YR 5/3) very gravelly clay loam, brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few fine to coarse roots; 30 percent clay films on all faces of peds; 10 percent cobbles and 30 percent gravel; neutral (pH 6.6); clear wavy boundary.

C—47 to 64 inches; light yellowish brown (10YR 6/4) very cobbly clay loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 25 percent gravel and 25 percent cobbles; neutral (pH 6.6).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist continuously from April through September

*Mean annual soil temperature:* 43 to 45 degrees F.

*Mean summer soil temperature:* 61 to 63 degrees F.

*Depth to diagnostic feature:* 6 to 9 inches to the argillic horizon

*Depth to the base of the argillic horizon:* 40 to 62 inches

*Thickness of the mollic epipedon:* 6 to 9 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 20 to 45 percent

*Rock fragment content:* 35 to 70 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4, 2 or 3 moist

*Chroma:* 1 through 3

*Clay content:* 20 to 27 percent

*Rock fragment content:* 25 to 50 percent total: 10 to 15 percent fine gravel,  
10 to 20 percent medium and coarse gravel, 15 to 20 percent cobbles, and  
0 to 5 percent indurated basalt stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 1.0 to 4.0 percent

*Cation-exchange capacity:* 14.1 to 28.9 meq/100 grams

#### *E horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 through 7 dry, 3 through 6 moist

*Chroma:* 2 or 3

*Texture of the fine-earth fraction:* loam, silt loam, and fine sandy loam

*Clay content:* 15 to 27 percent

*Rock fragment content:* 25 to 50 percent total: 5 to 15 percent fine gravel,  
15 to 20 percent medium and coarse gravel, 15 to 20 percent cobbles, and  
0 to 5 percent stones

*Calcium carbonate equivalent:* 0 to 0 percent

*Gypsum content:* 0 to 0 percent

*Electrical conductivity:* 0 to 0 mmhos/cm

*Sodium adsorption ratio:* 0 to 0

*Reaction:* moderately acid to neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.8 to 18.3 meq/100 grams

#### *Bt1 horizon(s):*

*Hue:* 5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 through 4

*Texture of the fine-earth fraction:* clay loam or clay

*Clay content:* 35 to 50 percent

*Sand content:* 20 to 45 percent

*Rock fragment content:* 35 to 70 percent total: 5 to 15 percent fine gravel,  
20 to 25 percent medium and coarse gravel, 5 to 25 percent cobbles, and  
0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 6.0 to 24.7 meq/100 grams

**C horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6, 4 or 5 moist

*Chroma:* 3 or 4

*Texture of fine-earth fraction:* clay loam, sandy clay loam with sand content increasing with depth

*Clay content:* 25 to 40 percent

*Rock fragment content:* 35 to 70 percent total: 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, 20 to 25 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 4.5 to 20.4 meq/100 grams

## Fort Series

*Map unit(s):* FcD, FcC

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fans, hills, ridges, terraces

*Position on landform:* rise, tread, head slope, side slope

*Parent material:* alluvium and/or eolian deposits, silty and clayey alluvium from irrigation water over eolian deposits derived from sedimentary rock

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Slope:* 0 to 7 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Ustic Haplargids

### Typical Pedon

*Map unit in which located:* Fort sandy loam, 0 to 7 percent slopes

*Location in survey area:* Fort sandy loam; in an area of Fort sandy loam, 0 to 7 percent slopes; in rangeland; about 250 feet south and 2,000 feet east of the northwest corner of section 12, T. 30 S., R. 62 W.; USGS Seven Lakes Reservoir topographic quadrangle; 37 degrees, 27 minutes, 10.20 seconds north latitude and 104 degrees, 17 minutes, 36.00 seconds west longitude; UTM 562,500 meters E., 4,145,343 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) and dark grayish brown (10YR 4/2) crushed, moist; weak fine granular structure; very friable, slightly hard, slightly sticky and slightly plastic; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Bt1—4 to 7 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 15 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.



Bt2—7 to 13 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 30 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Btk—13 to 28 inches; very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 30 percent distinct clay films on all faces of peds; 7 percent medium distinct irregular carbonate masses throughout; violently effervescent (6 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.

Bk—28 to 60 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; friable, hard, slightly sticky and slightly plastic; 7 percent medium distinct irregular carbonate masses throughout; violently effervescent (10 percent calcium carbonate equivalent); moderately alkaline (pH 8.2).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from May through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 6 to 8 inches to the argillic horizon; 8 to 20 inches to secondary carbonates; 0 inches to the ochric epipedon

*Thickness of the argillic horizon:* 14 to 28 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 20 to 45 percent, with 15 to 35 percent fine and coarser sand

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* sandy loam or clay loam

*Reaction:* neutral or slightly alkaline

*Clay content:* 12 to 27 percent

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 10.5 to 22.3 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* clay loam, loam

*Clay content:* 18 to 35 percent

*Sand content:* 20 to 55 percent, with 15 to 35 percent fine and coarser sand

*Calcium carbonate equivalent:* 0 to 2 percent

*Reaction:* slightly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 12.9 to 26.7 meq/100 grams

#### *Btk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry, 4 or 5 moist



*Chroma:* 3 or 4

*Texture:* clay loam, loam

*Clay content:* 18 to 35 percent

*Sand content:* 20 to 45 percent, with 15 to 35 percent fine and coarser sand

*Rock fragment content:* 0 to 6 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 2 to 15 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 12.9 to 26.7 meq/100 grams

Bk horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 or 7 dry, 5 or 6 moist

*Chroma:* 3 or 4

*Texture:* fine sandy loam, loam, silt loam, sandy loam

*Clay content:* 12 to 27 percent

*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Calcium carbonate equivalent:* 5 to 15 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 1

*Reaction:* pH 7.9 to 9.0

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 8.9 to 21.2 meq/100 grams

## Fuera Series

*Map unit(s):* DFV, TF

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* fan remnants, hills

*Position on landform:* base slope, side slope, riser

*Parent material:* alluvium and colluvium derived from shale and siltstone

*Elevation:* 7,000 to 9,000 feet (2,134 to 2,743 meters)

*Slope:* 10 to 45 percent

*Climatic data:*

*Mean annual precipitation:* 16 to 22 inches (407 to 559 millimeters)

*Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)

*Frost-free period:* 70 to 115 days

*Taxonomic class:* Fine, mixed, superactive, frigid Lamellic Haplustalfs

### Typical Pedon

*Map unit in which located:* Fuera-Dargol-Vamer complex, 10 to 45 percent slopes

*Location in survey area:* Fuera cobbly loam; in an area of Fuera-Dargol-Vamer complex, 10 to 45 percent slopes; in forest land; about eight miles south of Hwy 12 in Johnson Canyon, a tributary to Lorencito Canyon; T. 35 S, R. 67 W.; USGS Little Pine Canyon topographic quadrangle; 37 degrees, 0 minutes, 59.30 seconds north latitude; and 104 degrees, 50 minutes, 54.40 seconds west longitude; UTM 513,482 meters E., 4,096,709 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- Oe—0 to 2 inches; moderately decomposed plant material; dominantly moss and needles.
- E—2 to 7 inches; pale brown (10YR 6/3) cobbly loam, dark grayish brown (10YR 4/2) and very dark grayish brown (10YR 3/2) crushed, moist; moderate fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; 10 percent gravel and 10 percent cobbles; noneffervescent; neutral (pH 6.8); clear wavy boundary.
- E and Bt—7 to 11 inches; pale brown (10YR 6/3) cobbly loam, with lamellae of yellowish brown (10YR 5/4) cobbly clay loam, dark yellowish brown (10YR 4/4) moist and crushed; moderate fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; 5 percent gravel and 15 percent cobbles; slightly acid; clear wavy boundary.
- Bt1—11 to 27 inches; light yellowish brown (10YR 6/4) cobbly clay, dark yellowish brown (10YR 4/4) moist; strong fine subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; 45 percent clay films on all faces of peds; 10 percent cobbles and 15 percent gravel; noneffervescent; neutral (pH 6.6); gradual smooth boundary.
- Bt2—27 to 47 inches; yellowish brown (10YR 5/6) cobbly clay, dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/6) crushed, moist; strong medium subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; 45 percent clay films on all faces of peds; 5 percent gravel and 25 percent cobbles; noneffervescent; neutral (pH 6.6); clear wavy boundary.
- C—47 to 60 inches; light olive brown (2.5Y 5/4) cobbly clay, light olive brown (2.5Y 5/6) and light olive brown (2.5Y 5/4) crushed, moist; massive; friable, hard, moderately sticky and moderately plastic; 10 percent parachanners, 10 percent gravel, and 20 percent cobbles; noneffervescent; slightly acid (pH 6.5).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through August

*Mean annual soil temperature:* 44 to 46 degrees F.

*Mean summer soil temperature:* 50 to 53 degrees F.

*Depth to diagnostic features:* 6 to 11 inches to lamellae; 1 to 6 inches to albic materials; 7 to 14 inches to the argillic horizon

*Depth to the base of the argillic horizon:* 32 to 60 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 45 to 55 percent

*Sand content:* 5 to 35 percent

*Rock fragment content:* 15 to 35 percent

#### *E horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Clay content:* 18 to 27 percent

*Texture:* cobbly loam, sandy clay loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 15 to 35 percent total: 3 to 5 percent gravel, 5 to 10 percent medium and coarse gravel, 7 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 14.7 to 21.7 meq/100 grams

**E and Bt horizon(s):***Hue:* 7.5YR or 10YR*Value:* 5 to 7 dry, 4 or 5 moist (E)*Value:* 5 or 6 dry, 4 or 5 moist (Bt)*Chroma:* 2 to 4*Texture:* gravelly loam, gravelly clay loam, cobbly loam, cobbly clay loam*Clay content:* 20 to 40 percent*Rock fragment content:* 15 to 35 percent total: 2 to 5 percent fine gravel,  
3 to 20 percent medium and coarse gravel, 0 to 20 percent cobbles, and  
0 to 2 percent gravel*Reaction:* slightly acid or neutral*Organic matter content:* 0.0 to 0.5 percent*Cation-exchange capacity:* 14.2 to 30.2 meq/100 grams**Bt horizon(s):***Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 to 6*Texture:* cobbly clay, cobbly silty clay, gravelly clay, gravelly silty clay*Clay content:* 45 to 60 percent*Rock fragment content:* 15 to 30 percent total in the upper part, and 25 to 60  
percent total in the lower part: 1 to 10 percent fine gravel, 6 to 20 percent  
medium and coarse gravel, 0 to 25 percent cobbles, and 0 to 5 percent stones*Reaction:* slightly acid or neutral*Organic matter content:* 0.0 to 0.5 percent*Cation-exchange capacity:* 29.4 to 43.5 meq/100 grams**C horizon(s):***Hue:* 10YR or 2.5Y*Texture:* cobbly clay, cobbly clay loam*Clay content:* 35 to 50 percent*Rock fragment content:* 40 to 60 percent (including parafragments) total:  
5 to 6 percent fine gravel, 5 to 9 percent medium and coarse gravel,  
15 to 25 percent cobbles, and 0 to 5 percent stones; pararocks consist of  
5 to 15 percent weakly cemented shale and siltstone*Reaction:* slightly acid to slightly alkaline*Organic matter content:* 0.0 to 0.5 percent*Cation-exchange capacity:* 23.4 to 36.9 meq/100 grams**Furia Series***Map unit(s):* FyB*Depth class:* very deep*Drainage class:* poorly drained*Slowest permeability:* .06 to 0.2 in./hr. (slow)*Landform:* drainageways, flood plains*Position on landform:* dip, tread*Parent material:* alluvium derived from sandstone and shale*Elevation:* 6,500 to 8,000 feet (1,981 to 2,438 meters)*Slope:* 1 to 3 percent*Climatic data:**Mean annual precipitation:* 16 to 20 inches (406 to 508 millimeters)*Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)*Frost-free period:* 70 to 90 days

*Taxonomic class:* Fine, mixed, superactive, frigid Cumulic Endoaquolls

### Typical Pedon

*Map unit in which located:* Furia clay loam, 1 to 3 percent slopes

*Location in survey area:* Furia clay loam; in an area of Furia clay loam, 1 to 3 percent slopes; in rangeland; about 1,200 feet west and 700 feet south of the northeast corner of section 25, T. 32 S., R. 67 W.; USGS Weston topographic quadrangle; 37 degrees, 14 minutes, 5.10 seconds north latitude; and 104 degrees, 49 minutes, 57.80 seconds west longitude; UTM 514,837 meters E., 4,120,926 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches; dark gray (10YR 4/1) clay loam, very dark brown (10YR 2/2) moist; moderate fine and medium granular structure; friable, hard, slightly sticky and slightly plastic; many fine roots and many medium roots; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Ag—4 to 16 inches; dark gray (10YR 4/1) clay loam, black (10YR 2/1) moist; 5 percent fine distinct dark yellowish brown (10YR 4/4) and 10 percent fine distinct yellowish red (5YR 4/6) iron concentrations; moderate fine and medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; many fine roots and common medium roots; 5 percent organic stains; noneffervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bg1—16 to 32 inches; very dark gray (10YR 3/1) silty clay loam, very dark gray (N 3/) moist; 15 percent fine distinct yellowish red (5YR 4/6) iron concentrations; moderate medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; common fine roots and common medium roots; noneffervescent; neutral (pH 7.2); clear smooth boundary.

Bg2—32 to 43 inches; very dark gray (10YR 3/1) silty clay, black (N 2.5/) moist; 15 percent fine distinct yellowish red (5YR 4/6) iron concentrations; moderate medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; common fine roots; very slightly effervescent; neutral (pH 7.2); gradual smooth boundary.

Cg—43 to 65 inches; very dark gray (10YR 3/1) clay loam, very dark gray (N 3/) moist; 7 percent fine distinct strong brown (7.5YR 4/6) iron concentrations; weak coarse subangular blocky structure; firm, extremely hard, moderately sticky and moderately plastic; very slightly effervescent; neutral (pH 7.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aquic

*Seasonal pattern:* moist continuously

*Mean annual soil temperature:* 44 to 46 degrees F.

*Mean summer soil temperature:* 53 to 57 degrees F.

*Depth to diagnostic features:* 40 to 60 inches to secondary carbonates; 4 to 18 inches to redoximorphic features; 6 to 18 inches to aquic conditions; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 40 to 60 inches or more

*Seasonal high water table:* from April through August

*Depth to top:* 6 to 18 inches

*Particle-size control section (weighted average):*

*Clay content:* 35 to 45 percent

*Sand content:* 10 to 25 percent, with less than 15 percent fine sand or coarser

*Rock fragment content:* 0 to 5 percent

**A horizon(s):***Hue:* 7.5YR or 10YR*Value:* 3 or 4 dry, 2 or 3 moist*Chroma:* 1 or 2*Clay content:* 27 to 40 percent*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 2 percent medium and coarse gravel*Electrical conductivity:* 0 to 1 mmhos/cm*Sodium adsorption ratio:* 0 to 1*Reaction:* neutral or slightly alkaline*Organic matter content:* 3.0 to 7.0 percent*Cation-exchange capacity:* 25.0 to 33.4 meq/100 grams**Bg horizon(s):***Hue:* N, 7.5YR or 10YR*Value:* 3 or 4 dry, 2 or 3 moist*Chroma:* 0 or 1*Texture:* silty clay loam, silty clay*Clay content:* 35 to 50 percent*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 2 percent medium and coarse gravel*Calcium carbonate equivalent:* 0 to 2 percent*Reaction:* slightly acid to slightly alkaline*Organic matter content:* 2.0 to 6.0 percent*Cation-exchange capacity:* 28.2 to 40.6 meq/100 grams**Cg horizon(s):***Hue:* N, 7.5YR or 10YR*Value:* 3 or 4 dry, 2 or 3 moist*Chroma:* 0 to 1*Texture:* clay loam, silty clay loam*Clay content:* 30 to 40 percent*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 2 percent medium and coarse gravel*Calcium carbonate equivalent:* 0 to 2 percent*Reaction:* slightly acid to slightly alkaline*Organic matter content:* 1.0 to 5.0 percent*Cation-exchange capacity:* 23.9 to 33.0 meq/100 grams

## **Glenberg Series**

*Map unit(s):* GgB*Depth class:* very deep*Drainage class:* well drained*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)*Landform:* flood plains, terraces*Position on landform:* tread*Parent material:* sandy alluvium*Elevation:* 4,400 to 5,500 feet (1,341 to 1,677 meters)*Slope:* 0 to 3 percent*Climatic data:**Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)*Frost-free period:* 140 to 160 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, calcareous, mesic Ustic  
Torrifluvents

### Typical Pedon

*Map unit in which located:* Glenberg fine sandy loam, 0 to 3 percent slopes

*Location in survey area:* Glenberg fine sandy loam; in an area of Glenberg fine sandy loam, 0 to 3 percent slopes; in riparian land; about 2,200 feet east and 300 feet north of the southwest corner of section 18, T. 28 S., R. 55 W.; USGS Beaty Canyon topographic quadrangle; 37 degrees, 36 minutes, 7.90 seconds north latitude; and 103 degrees, 37 minutes, 11.50 seconds west longitude; UTM 621,828 meters E., 4,162,574 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 5 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; weak fine and medium granular structure; very friable, soft, nonsticky and nonplastic; many fine and medium roots throughout; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
- C1—5 to 9 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; massive; very friable, soft, nonsticky and nonplastic; common very fine and fine roots throughout; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- C2—9 to 17 inches; brown (10YR 5/3) loamy fine sand, brown (10YR 4/3) moist; massive; very friable, soft, nonsticky and nonplastic; few very fine and fine roots throughout; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
- C3—17 to 22 inches; grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; 15 percent fine distinct yellowish brown (10YR 5/6) mottles; massive; very friable, soft, nonsticky and nonplastic; few very fine roots throughout; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
- C4—22 to 25 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; massive; very friable, soft, nonsticky and nonplastic; few very fine roots throughout; strongly effervescent; moderately alkaline (pH 8.1); abrupt wavy boundary.
- C5—25 to 45 inches; brown (10YR 5/3) loam, dark grayish brown (10YR 4/2) moist; 25 percent medium prominent yellowish brown (10YR 5/6) mottles; massive; very friable, soft, nonsticky and nonplastic; few very fine roots throughout; violently effervescent; moderately alkaline (pH 8.1); abrupt smooth boundary.
- C6—45 to 60 inches; very pale brown (10YR 7/3) and pale brown (10YR 6/3) loamy sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to secondary carbonates:* 0 to 6 inches, but visible secondary calcium carbonates occur as soft masses or thin seams at any depth

*Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 50 to 70 percent

*Rock fragment content:* 0 to 15 percent



**A horizon(s):***Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 or 4*Clay content:* 10 to 20 percent*Calcium carbonate equivalent:* 0 to 2 percent*Reaction:* slightly alkaline or moderately alkaline*Organic matter content:* 0.5 to 2.0 percent*Cation-exchange capacity:* 8.6 to 17.0 meq/100 grams**C horizon(s):***Hue:* 10YR*Value:* 5 to 7 dry, 4 or 5 moist*Chroma:* 3 or 4*Texture:* stratified silt loam, loam, sandy loam, fine sandy loam, or loamy sand*Clay content:* 5 to 18 percent*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel*Calcium carbonate equivalent:* 1 to 3 percent*Electrical conductivity:* 0 to 2 mmhos/cm*Sodium adsorption ratio:* 0 to 2*Reaction:* slightly alkaline or moderately alkaline*Organic matter content:* 0.0 to 1.0 percent*Cation-exchange capacity:* 4.1 to 16.6 meq/100 grams

## Graneros Series

*Map unit(s):* MG*Depth class:* moderately deep*Drainage class:* well drained*Slowest permeability:* .06 to 0.2 in./hr. (slow)*Landform:* mountain slopes*Position on landform:* mountainflank*Parent material:* alluvium and residuum weathered from shale and siltstone*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)*Slope:* 15 to 40 percent*Climatic data:**Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)*Mean annual air temperature:* 38 to 42 degrees F. (3.0 to 6.0 degrees C.)*Frost-free period:* 40 to 60 days*Taxonomic class:* Fine, smectitic Ustic Glossocryalfs

### Typical Pedon

*Map unit in which located:* Tercio-Graneros complex, 15 to 40 percent slopes*Location in survey area:* Graneros gravelly loam; in an area of Tercio-Graneros complex, 15 to 40 percent slopes; about 2,100 feet north and 650 feet west of the southeast corner of section 25, T. 31 S., R. 69 W.; USGS Cucharas Pass topographic quadrangle; 37 degrees, 18 minutes, 58.00 seconds north latitude; and 105 degrees, 2 minutes, 59.90 seconds west longitude; UTM 495,573 meters E., 4,129,943 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)*Surface fragments:* about 5 percent stones



- Oi—0 to 1 inch; slightly decomposed plant material; dominantly needles and twigs.
- A—1 inch to 3 inches; dark gray (10YR 4/1) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; friable, soft, slightly sticky and slightly plastic; few medium and coarse roots throughout; 5 percent stones, 5 percent cobbles, and 20 percent gravel; neutral (pH 6.8); abrupt smooth boundary.
- E—3 to 7 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; very friable, soft, slightly sticky and slightly plastic; few medium and coarse roots throughout; 5 percent cobbles and 20 percent gravel; moderately acid (pH 5.6); abrupt smooth boundary.
- Bt/E—7 to 13 inches; 60 percent light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist, and 40 percent light gray (10YR 7/2) gravelly loam, and dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; firm, hard, moderately sticky and slightly plastic; few coarse roots throughout; 45 percent distinct clay films on all faces of peds; 25 percent gravel; slightly acid (pH 6.4); clear smooth boundary.
- Bt1—13 to 23 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; weak medium prismatic structure parting to strong medium angular blocky structure; very firm, very hard, very sticky and very plastic; few coarse roots throughout; 55 percent prominent clay films on all faces of peds; 20 percent gravel; slightly acid (pH 6.4); clear smooth boundary.
- Bt2—23 to 32 inches; very pale brown (10YR 7/4) gravelly silty clay loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; few coarse roots throughout; 30 percent distinct clay films on all faces of peds; 20 percent siltstone parafragments; moderately acid (pH 5.8); gradual wavy boundary.
- Cr—32 to 40 inches; weathered bedrock; very weakly cemented; mixed soft and hard shale and siltstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist from March through September

*Mean annual soil temperature:* 39 to 43 degrees F.

*Mean summer soil temperature:* 44 to 47 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 0 to 4 inches to the albic horizon; 3 to 9 inches to the glossic horizon; 9 to 16 inches to the argillic horizon; 20 to 40 inches to paralithic contact

*Thickness of the argillic horizon:* 15 to 25 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 45 percent

*Sand content:* 5 to 35 percent

*Rock fragment content:* 15 to 35 percent

#### *A horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 18 to 27 percent

*Rock fragment content:* 4 to 8 percent fine gravel, 6 to 17 percent medium and coarse gravel, 5 to 5 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 1.0 to 2.0 percent  
*Cation-exchange capacity:* 12.9 to 23.0 meq/100 grams

**E horizon(s):**

*Hue:* 7.5YR to 2.5Y  
*Value:* 6 or 7 dry, 4 or 5 moist  
*Chroma:* 2 or 3  
*Clay content:* 20 to 27 percent  
*Rock fragment content:* 3 to 8 percent fine gravel, 2 to 7 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones  
*Reaction:* moderately acid to neutral  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 11.2 to 18.3 meq/100 grams

**Bt horizon(s):**

*Hue:* 7.5YR to 2.5Y  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 3 to 6  
*Texture of the fine-earth fraction:* clay, clay loam, silty clay loam, silty clay  
*Clay content:* 35 to 45 percent  
*Rock fragment content:* 0 to 14 percent fine gravel, 0 to 20 percent medium and coarse gravel, and 0 to 1 percent cobbles; with 15 to 35 percent in the Bt1 horizon, and 0 to 15 in the Bt2 horizon  
*Parafragment content:* 15 to 35 percent siltstone and shale parachanners in the Bt2 horizon  
*Reaction:* slightly acid or neutral  
*Base saturation:* 60 to 100 percent  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 6.0 to 22.6 meq/100 grams

## Groomer Series

*Map unit(s):* GC  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* mountain slopes, fan remnants  
*Position on landform:* mountain base, rise  
*Parent material:* alluvium and slope alluvium derived from clayey shale  
*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)  
*Slope:* 5 to 25 percent  
*Climatic data:*  
*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)  
*Mean annual air temperature:* 40 to 43 degrees F. (4.2 to 6.0 degrees C.)  
*Frost-free period:* 50 to 70 days

*Taxonomic class:* Fine, smectitic Typic Argicryolls

### Typical Pedon

*Map unit in which located:* Groomer-Cucharas complex, 5 to 35 percent slopes  
*Location in survey area:* Groomer loam; in an area of Groomer-Cucharas complex, 5 to 35 percent slopes; in rangeland; about 1,500 south and 1,400 feet east of the northwest corner of section 1, T. 32 S., R. 69 W.; USGS Cucharas Pass topographic quadrangle; 37 degrees, 17 minutes, 28.00 seconds north latitude;

and 105 degrees, 3 minutes, 40.30 seconds west longitude; UTM 494,575 meters E., 4,127,169 meters N., zone 13, NAD83. NAD83 (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 1 percent stones

A—0 to 10 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; few very fine roots throughout; 1 percent stones and 10 percent gravel; noneffervescent; slightly acid (pH 6.4); abrupt wavy boundary.

Bt1—10 to 21 inches; brown (10YR 5/3) cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; friable, hard, very sticky and very plastic; common very fine and fine roots throughout; 30 percent distinct clay films on all faces of peds; 10 percent gravel and 10 percent cobbles; noneffervescent; neutral (pH 6.8); clear smooth boundary.

Bt2—21 to 39 inches; yellowish brown (10YR 5/4) clay, yellowish brown (10YR 5/6) moist; moderate medium prismatic structure parting to strong fine and medium subangular blocky structure; very firm, very hard, very sticky and very plastic; common very fine and fine roots throughout; 55 percent distinct clay films on all faces of peds; 5 percent gravel; noneffervescent; neutral (pH 7.2); clear wavy boundary.

Bt3—39 to 50 inches; brown (10YR 5/3) gravelly clay, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; few very fine roots in cracks; 20 percent distinct clay films on all faces of peds; 5 percent cobbles and 15 percent gravel; noneffervescent; slightly alkaline (pH 7.6); clear wavy boundary.

BcK—50 to 66 inches; light yellowish brown (2.5Y 6/4) gravelly silty clay loam, light olive brown (2.5Y 5/4) moist; weak medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few very fine roots in cracks; 10 percent fine irregular carbonate masses throughout; 25 percent gravel; strongly effervescent; moderately alkaline (pH 8.0).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist from March through September

*Mean annual soil temperature:* 41 to 44 degrees F.

*Mean summer soil temperature:* 48 to 52 degrees F.

*Depth to the base of the argillic horizon:* 30 to 50 inches

*Depth to diagnostic features: secondary carbonates:* 40 to 60 inches to secondary carbonates; 0 inches to the mollic epipedon; 10 to 15 inches to the argillic horizon

*Particle-size control section (weighted average):*

*Clay content:* 40 to 50 percent

*Sand content:* 25 to 35 percent

*Rock fragment content:* 5 to 25 percent

*A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 20 to 27 percent

*Rock fragment content:* 3 to 6 percent fine gravel, 2 to 7 percent medium and coarse gravel, 0 to 1 percent cobbles, and 0 to 1 percent stones

*Reaction:* slightly acid or neutral  
*Organic matter content:* 3.0 to 5.0 percent  
*Cation-exchange capacity:* 20.3 to 31.1 meq/100 grams

**Bt horizon(s):**

*Hue:* 10YR or 7.5YR  
*Value:* 4 to 6 dry, 3 to 5 moist  
*Chroma:* 3 or 4  
*Texture:* cobbly clay loam, clay, or gravelly clay  
*Clay content:* 35 to 50 percent  
*Rock fragment content:* 5 to 35 percent total: 1 to 10 percent fine gravel, 2 to 7 percent medium and coarse gravel, and 0 to 20 percent cobbles  
*Calcium carbonate equivalent:* 0 to 1 percent  
*Reaction:* neutral to slightly alkaline (pH 6.6 to 7.3)  
*Organic matter content:* 0.0 to 3.0 percent  
*Cation-exchange capacity:* 6.7 to 36.8 meq/100 grams

**BCK horizon(s):**

*Hue:* 10YR or 2.5Y  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 3 or 4  
*Texture:* gravelly clay loam, gravelly silty clay loam  
*Clay content:* 30 to 40 percent  
*Rock fragment content:* 4 to 13 percent fine gravel and 11 to 22 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 6.0 to 20.4 meq/100 grams

## **Gulnare Series**

*Map unit(s):* GA, GR  
*Depth class:* shallow  
*Drainage class:* well drained  
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)  
*Landform:* hills  
*Position on landform:* side slope, head slope  
*Parent material:* slope alluvium and residuum weathered from sandstone  
*Elevation:* 6,800 to 9,000 feet (2,073 to 2,743 meters)  
*Slope:* 5 to 50 percent  
*Climatic data:*  
*Mean annual precipitation:* 17 to 23 inches (432 to 584 millimeters)  
*Mean annual air temperature:* 42 to 46 degrees F. (5.6 to 8.0 degrees C.)  
*Frost-free period:* 80 to 100 days

*Taxonomic class:* Loamy, mixed, superactive, frigid Lithic Haplustalfs

### **Typical Pedon**

*Map unit in which located:* Gulnare-Allens Park complex, 5 to 35 percent slopes  
*Location in survey area:* Gulnare loam; in an area of Gulnare-Allens Park complex, 5 to 35 percent slopes; about 2,500 feet south and 800 feet west of the northeast corner of section 1, T. 33 S., R. 67 W.; USGS Weston topographic quadrangle; 37 degrees, 12 minutes, 1.80 seconds north latitude; and 104 degrees, 49

minutes, 58.00 seconds west longitude; UTM 514,839 meters E., 4,117,131 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 5 percent gravel, 2 percent cobbles, and 1 percent stones

Oi—0 to 2 inches; slightly decomposed plant material; partially decomposed needles and twigs.

E—2 to 5 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; common fine and medium roots; 2 percent stones and 5 percent cobbles; neutral (pH 6.8); abrupt smooth boundary.

Bt1—5 to 13 inches; brown (7.5YR 5/4) gravelly clay loam, brown (7.5YR 4/4) moist; moderate fine and medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; few coarse roots; 45 percent distinct clay films on all faces of peds; 15 percent gravel; neutral (pH 7.0); clear smooth boundary.

Bt2—13 to 17 inches; strong brown (7.5YR 5/6) gravelly sandy clay loam, strong brown (7.5YR 4/6) moist; 28 percent clay; moderate medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; few coarse roots; 40 percent distinct clay films on all faces of peds; 15 percent gravel; moderately acid (pH 5.6); abrupt wavy boundary.

Cr—17 to 19 inches; weathered bedrock; weakly cemented; soft decomposed sandstone.

R—19 inches; unweathered bedrock; indurated; hard Poison Canyon sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some parts from April through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 57 to 61 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 10 to 20 inches to lithic contact; 0 to 4 inches to albic materials; 3 to 12 inches to the argillic horizon

*Thickness of the argillic horizon:* 8 to 15 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 35 to 50 percent

*Rock fragment content:* 15 to 25 percent

#### E horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 5 to 7 dry, 3 to 5 moist

*Chroma:* 2 to 4

*Clay content:* 10 to 20 percent

*Rock fragment content:* 0 to 15 percent total: 0 to 3 percent fine gravel, 0 to 3 percent medium and coarse gravel, 0 to 7 percent cobbles, and 0 to 2 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 16.6 meq/100 grams

#### Bt1 horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 4 to 6

*Texture:* gravelly clay loam, gravelly sandy clay loam

*Clay content:* 20 to 35 percent

*Sand content:* 35 to 50 percent

*Rock fragment content:* 15 to 35 percent total: 5 to 10 percent fine gravel, 10 to 15 percent medium and coarse gravel, 0 to 9 percent cobbles, and 0 to 1 percent stones

*Reaction:* moderately acid to neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 16.2 to 27.5 meq/100 grams

## Haversid Series

*Map unit(s):* HvA

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* terraces

*Position on landform:* tread

*Parent material:* loamy alluvium derived from sandstone and shale

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Slope:* 0 to 3 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 160 days

*Taxonomic class:* Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents

### Typical Pedon

*Map unit in which located:* Haversid silt loam, 0 to 3 percent slopes

*Location in survey area:* Haversid silt loam; in an area of Haversid silt loam, 0 to 3 percent slopes; in rangeland; about 2,300 feet south and 700 feet west of the northeast corner of Section 29, T. 33 S., R. 61 W.; USGS Aguilar topographic quadrangle; 37 degrees, 8 minutes, 24.80 seconds north latitude; and 104 degrees, 15 minutes, 9.00 seconds west longitude; UTM 566,389 meters E., 4,110,691 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 14 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist and crushed; weak medium platy structure parting to weak fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; violently effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

C1—14 to 32 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist and crushed; weak medium platy structure, and weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common; 1 percent fine spherical salt masses throughout; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Cyz—32 to 53 inches; light brownish gray (10YR 6/2) stratified loam to clay loam, dark grayish brown (10YR 4/2) moist; platy; firm, very hard, slightly sticky and slightly plastic; few fine roots; 5 percent fine spherical salt and gypsum masses throughout; violently effervescent; moderately alkaline (pH 8.2); gradual smooth boundary.



C2—53 to 60 inches; pale brown (10YR 6/3) stratified fine sandy loam to loam, brown (10YR 4/3) moist; massive; friable, slightly hard, nonsticky and nonplastic; few fine roots; violently effervescent; moderately alkaline (pH 8.0).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to sodium salts:* 10 to 40 inches

*Depth to diagnostic features:* 0 to 4 inches to secondary carbonates; 0 inches to the ochric epipedon; visible calcium carbonate, soluble salts, and gypsum may occur at any depth

*Organic carbon content:* .6 to 2.0 percent in the surface and decreases irregularly with depth

*Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 20 to 60 percent, with more than 15 percent fine and coarser sand

*Rock fragment content:* 0 to 15 percent

*A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 2 or 3

*Clay content:* 18 to 27 percent

*Calcium carbonate equivalent:* 1 to 5 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 14.7 to 22.3 meq/100 grams

*C horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* stratified silt loam, loam, clay loam, and fine sandy loam

*Clay content:* 18 to 35 percent

*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Exchangeable sodium percentage:* 1 to 10 percent

*Calcium carbonate equivalent:* 1 to 15 percent

*Gypsum content:* 0 to 5 percent

*Electrical conductivity:* 0 to 8 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* moderately alkaline or strongly alkaline (pH 7.9 to 8.4)

*Organic matter content:* 0.0 to 2.0 percent

*Cation-exchange capacity:* 10.9 to 27.5 meq/100 grams

## Histic Cryaquolls Taxon above family

*Map unit(s):* DH

*Depth class:* very deep



*Drainage class:* very poorly drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* fans

*Position on landform:* rise

*Parent material:* gravelly alluvium

*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)

*Slope:* 2 to 5 percent

*Climatic data:*

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 39 to 43 degrees F. (4.0 to 6.0 degrees C.)

*Frost-free period:* 60 to 75 days

*Taxonomic class:* Loamy-skeletal, mixed Histic Cryaquolls

### Typical Pedon

*Map unit in which located:* Davtone-Histic Cryaquolls complex, 2 to 5 percent slopes

*Location in survey area:* Histic Cryaquolls peat, in an area of Davtone-Histic

Cryaquolls complex, 2 to 5 percent slopes; in rangeland; about 1,800 feet east and 640 feet south of the northwest corner of section 8, T. 33 S., R. 68 W.; USGS Stonewall topographic quadrangle; 37 degrees, 11 minutes, 41.00 seconds north latitude and 105 degrees, 1 minute, 15.60 seconds west longitude; UTM 498,135 meters E., 4,116,473 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 6 inches; dark reddish brown (5YR 2/2) peat, dark brown (7.5YR 3/2) dry; dominantly fibric material; clear smooth boundary.

Oe—6 to 10 inches; black (7.5YR 2/1) mucky peat, very dark gray (10YR 3/1) dry; 18 percent clay; 50 percent fibric material and 50 percent sapric material; clear smooth boundary.

Ag—10 to 20 inches; dark gray (N 4/0) cobbly sandy loam, black (N 2/0) moist; weak fine subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; many very fine and fine roots; 10 percent cobbles and 15 percent gravel; noneffervescent; neutral (pH 6.8); clear smooth boundary.

AB—20 to 29 inches; brown (7.5YR 5/2) very cobbly sandy loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; many very fine and fine roots; 5 percent stones, 12 percent gravel, and 19 percent cobbles; noneffervescent; neutral (pH 7.0); clear smooth boundary.

Bg—29 to 60 inches; pinkish gray (7.5YR 6/2) very cobbly sandy loam, brown (7.5YR 4/4) moist; massive; very friable, soft, nonsticky and nonplastic; common very fine and fine roots; 20 percent medium spherical light brown (7.5YR 6/4) masses of oxidized iron throughout; 5 percent stones, 20 percent gravel, and 27 percent cobbles; noneffervescent; neutral (pH 7.0).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* aquic

*Seasonal pattern:* moist continuously with peak periods from March through August

*Mean annual soil temperature:* 40 to 43 degrees F.

*Mean summer soil temperature:* 42 to 48 degrees F.

*Depth to diagnostic features:* 0 inches to the histic epipedon; 12 to 24 inches to aquic conditions; 10 to 30 inches to the mollic epipedon

*Thickness of the histic epipedon:* 7 to 16 inches

*Thickness of the mollic epipedon:* 10 to 30 inches  
*Seasonal high water table:* from January to December  
*Depth to top:* 12 to 18 inches April to September

*Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent  
*Sand content:* 55 to 75 percent  
*Rock fragment content:* 15 to 60 percent

O horizon(s):

*Texture:* peat, mucky peat  
*Clay content:* 0 to 2 percent  
*Reaction:* strongly acid to slightly acid  
*Organic matter content:* 20.0 to 40.0 percent  
*Cation-exchange capacity:* 40.0 to 80.0 meq/100 grams

A horizon(s):

*Hue:* N, 7.5YR or 10YR  
*Value:* 3 to 5 dry; 2 or 3 moist  
*Chroma:* 0 to 2  
*Texture:* cobbly sandy loam  
*Clay content:* 10 to 20 percent  
*Rock fragment content:* 2 to 10 percent fine gravel, 5 to 10 percent medium and coarse gravel, and 8 to 15 percent cobbles  
*Reaction:* slightly acid or neutral  
*Organic matter content:* 3.0 to 7.0 percent  
*Cation-exchange capacity:* 10.5 to 19.9 meq/100 grams

AB horizon(s):

*Hue:* N, 7.5YR or 10YR  
*Value:* 3 to 5 dry; 2 or 3 moist  
*Chroma:* 0 to 2  
*Texture:* very cobbly sandy loam  
*Clay content:* 10 to 20 percent  
*Rock fragment content:* 0 to 9 percent fine gravel, 3 to 11 percent medium and coarse gravel, 14 to 23 percent cobbles, and 0 to 9 percent stones  
*Reaction:* slightly acid or neutral  
*Organic matter content:* 2.0 to 4.0 percent  
*Cation-exchange capacity:* 10.0 to 18.6 meq/100 grams

Bg horizon(s):

*Hue:* 7.5YR or 10YR  
*Value:* 5 or 6 dry; 4 or 5 moist  
*Chroma:* 2 to 4  
*Texture:* very cobbly sandy loam, very gravelly sandy loam  
*Clay content:* 10 to 20 percent  
*Rock fragment content:* 0 to 16 percent fine gravel, 2 to 22 percent medium and coarse gravel, 17 to 37 percent cobbles, and 0 to 9 percent stones  
*Reaction:* slightly acid or neutral  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 7.2 to 13.7 meq/100 grams

## Hoehne Series

*Map unit(s):* Hn  
*Depth class:* very deep

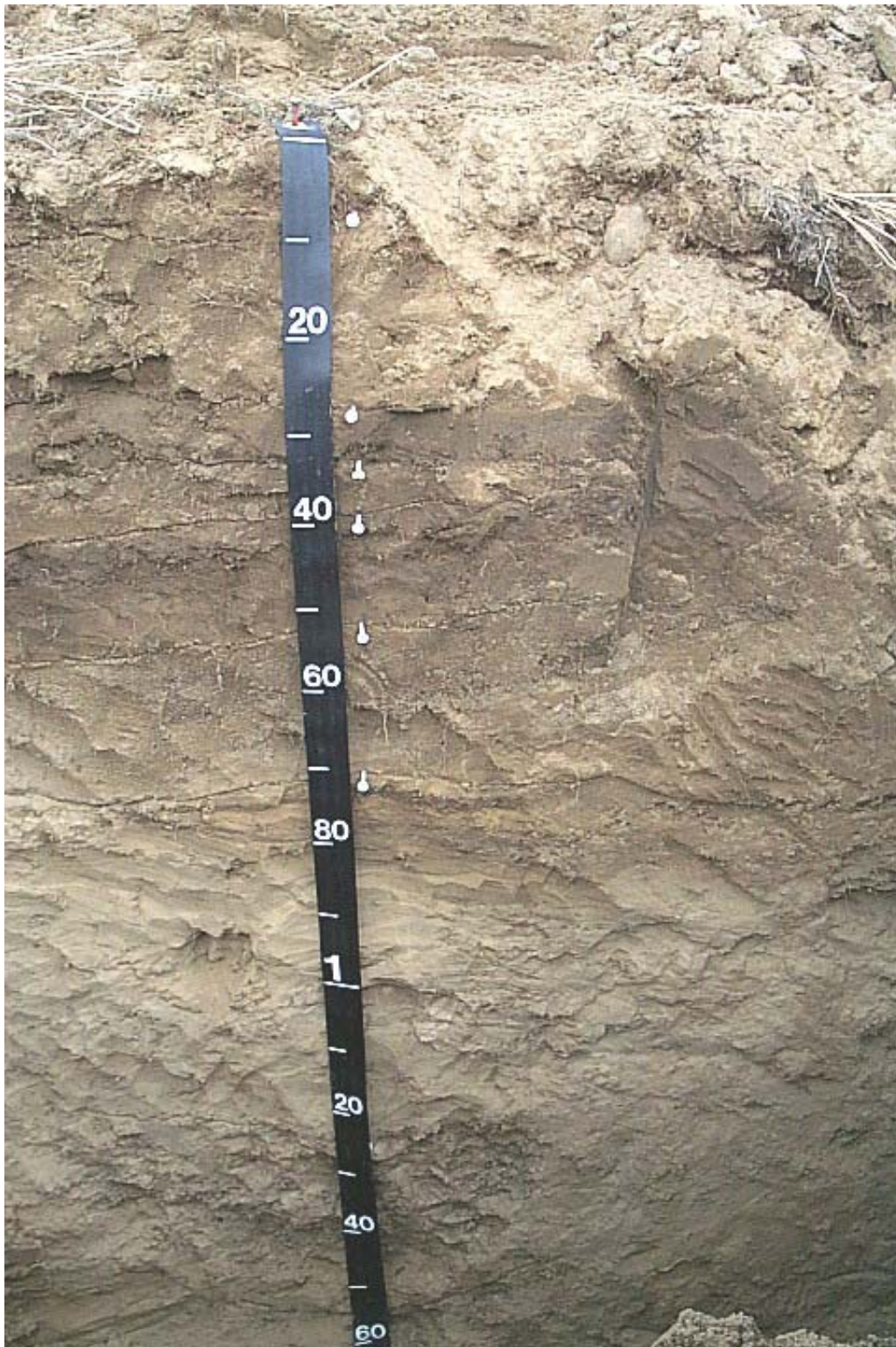


Figure 16.—A typical stratified profile of Hoehne sandy loam. These soils formed in recent alluvium on flood plains and terraces.



*Drainage class:* somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* flood plains

*Position on landform:* tread

*Parent material:* sandy alluvium

*Elevation:* 5,500 to 6,300 feet (1,524 to 1,920 meters)

*Slope:* 0 to 2 percent

*Climatic data:*

*Mean annual precipitation:* 13 to 15 inches (330 to 381 millimeters)

*Mean annual air temperature:* 49 to 53 degrees F. (9.5 to 11.7 degrees C.)

*Frost-free period:* 120 to 155 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, nonacid, mesic Ustic  
Torrifluvents

### Typical Pedon

*Map unit in which located:* Hoehne fine sandy loam, 0 to 2 percent slopes

*Location in survey area:* Hoehne fine sandy loam; in an area of Hoehne fine sandy loam, 0 to 2 percent slopes; in forest land; about 500 feet north and 200 feet east of the southwest corner of section 13, T. 33 S., R. 64 W.; USGS Trinidad West topographic quadrangle; 37 degrees, 9 minutes, 55.50 seconds north latitude; and 104 degrees, 30 minutes, 53.30 seconds west longitude; UTM 543,076 meters E., 4,113,334 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 3 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; many fine and medium roots throughout; slightly alkaline (pH 7.6); clear smooth boundary.
- C1—3 to 14 inches; brown (10YR 5/3) loamy very fine sand, brown (10YR 4/3) moist; massive; loose, soft, nonsticky and nonplastic; many fine and medium roots throughout; slightly alkaline (pH 7.6); abrupt smooth boundary.
- C2—14 to 34 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; massive; very friable, soft, nonsticky and nonplastic; many very fine and fine roots throughout; slightly alkaline (pH 7.6); clear smooth boundary.
- C3—34 to 44 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) moist; massive; very friable, slightly hard, nonsticky and nonplastic; common very fine and fine roots throughout; slightly alkaline (pH 7.6); clear smooth boundary.
- C4—44 to 60 inches; grayish brown (10YR 5/2) fine sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots throughout; slightly alkaline (pH 7.6).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 50 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 0 inches to the ochric epipedon; 40 to 72 inches to secondary carbonates

*Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 50 to 75 percent

*Rock fragment content:* 0 to 15 percent

**A horizon(s):***Hue:* 10YR or 7.5YR*Value:* 4 to 6 dry, 3 to 5 moist*Chroma:* 2 or 3*Clay content:* 10 to 18 percent*Reaction:* neutral or slightly alkaline*Organic matter content:* 0.5 to 2.0 percent*Cation-exchange capacity:* 8.6 to 15.5 meq/100 grams**C1 horizon(s):***Hue:* 10YR or 7.5YR*Value:* 5 to 7 dry, 4 to 6 moist*Chroma:* 2 or 3*Texture:* stratified fine sandy loam, loamy fine sand, sandy loam, and loamy sand with bands of loam below 40 inches in depth*Texture:* fine sandy loam, loamy fine sand*Clay content:* 5 to 18 percent*Rock fragment content:* 0 to 6 percent fine gravel and 0 to 3 percent medium and coarse gravel*Calcium carbonate equivalent:* 0 to 1 percent*Reaction:* slightly alkaline*Organic matter content:* 0.0 to 1.0 percent*Cation-exchange capacity:* 4.1 to 15.1 meq/100 grams*Remarks:* redox concentrations are common with increasing depth

## Howlett Series

*Map unit(s):* LH*Depth class:* very deep*Drainage class:* well drained*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)*Landform:* mountain slopes*Position on landform:* mountainflank*Parent material:* slope alluvium and colluvium derived from sandstone*Elevation:* 8,500 to 10,800 feet (2,591 to 3,292 meters)*Slope:* 5 to 40 percent*Climatic data:**Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)*Frost-free period:* 40 to 70 days*Taxonomic class:* Fine-loamy, mixed, superactive Ustic Haplocryalfs

### Typical Pedon

*Map unit in which located:* Leadville-Howlett complex, 5 to 40 percent slopes, stony*Location in survey area:* Howlett cobbly sandy loam; in an area of Leadville-Howlett complex, 5 to 40 percent slopes, stony; in forest land; about 1.3 miles west of the intersection of Wilkens and Hell Canyons in Hell Canyon, T. 33 S., R. 69 W.; USGS Stonewall topographic quadrangle; 37 degrees, 10 minutes, 23.00 seconds north latitude; and 105 degrees, 4 minutes, 59.90 seconds west longitude; UTM 492,604 meters E., 4,114,073 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)*Surface fragments:* about 1 percent stones

- Oi—0 to 2 inches; slightly decomposed plant material; dominantly needles, twigs, and moss.
- E—2 to 14 inches; pinkish gray (5YR 6/2) cobbly sandy loam, reddish brown (5YR 4/3) moist; moderate fine granular structure; very friable, soft, nonsticky and nonplastic; 1 percent stones, 10 percent cobbles, and 10 percent gravel; noneffervescent; slightly acid (pH 6.4); clear smooth boundary.
- Bt1—14 to 23 inches; reddish gray (5YR 5/2) gravelly sandy clay loam, dark reddish gray (5YR 4/2) moist; moderate medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 10 percent distinct clay films on all faces of peds; 5 percent cobbles and 15 percent gravel; noneffervescent; moderately acid (pH 6.0); clear smooth boundary.
- Bt2—23 to 47 inches; reddish brown (2.5YR 5/3) gravelly sandy clay loam, reddish brown (2.5YR 4/4) moist; moderate medium subangular blocky structure; firm, hard, slightly sticky and slightly plastic; 50 percent distinct clay films on all faces of peds; 5 percent cobbles and 20 percent gravel; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.
- BCt—47 to 62 inches; dark reddish brown (2.5YR 3/4) very cobbly sandy clay loam, dark reddish brown (2.5YR 3/4) moist; weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 15 percent distinct clay films on vertical faces of peds; 15 percent gravel and 30 percent cobbles; noneffervescent; neutral (pH 6.6).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist from March through September

*Mean annual soil temperature:* 38 to 43 degrees F.

*Mean summer soil temperature:* 44 to 48 degrees F.

*Depth to diagnostic features:* 0 to 3 inches to the albic horizon; 9 to 23 inches to the argillic horizon

*Thickness of the albic horizon:* 8 to 20 inches

*Depth to the base of the argillic horizon:* 62 or more inches

##### *Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 40 to 65 percent

*Rock fragment content:* 15 to 35 percent

##### *E horizon(s):*

*Hue:* 5YR or 7.5YR

*Value:* 6 or 7 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Clay content:* 10 to 20 percent

*Rock fragment content:* 15 to 35 percent total: 1 to 5 percent fine gravel, 6 to 10 percent medium and coarse gravel, 8 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* moderately acid to neutral

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 7.6 to 16.6 meq/100 grams

##### *Bt horizon(s):*

*Hue:* 5YR or 2.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* gravelly clay loam or gravelly sandy clay loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 15 to 35 percent total: 0 to 8 percent fine gravel,  
9 to 17 percent medium and coarse gravel, 0 to 10 percent cobbles, and  
0 to 4 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 0.5 percent

*Base saturation:* 60 to 100 percent

*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

BCt horizon(s):

*Hue:* 5YR or 2.5YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 3 to 6

*Clay content:* 20 to 35 percent

*Rock fragment content:* 35 to 60 percent total: 0 to 10 percent fine gravel,  
1 to 15 percent medium and coarse gravel, 17 to 30 percent cobbles, and  
0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 0.5 percent

*Base saturation:* 60 to 100 percent

*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

## Humbarsprings Series

*Map unit(s):* HyD

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fans, remnant terraces

*Position on landform:* Riser

*Parent material:* alluvium

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Slope:* 3 to 12 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 51 to 53 degrees F. (10.5 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, mesic Aridic Calciustolls

### Typical Pedon

*Map unit in which located:* Humbarsprings gravelly loam, 3 to 12 percent slopes

*Location in survey area:* Humbarsprings gravelly loam; in an area of Humbarsprings  
gravelly loam, 3 to 12 percent slopes; in rangeland; about 1,250 feet east and  
1,200 feet north of the southwest corner of section 6, T. 33 S., R. 51 W.; USGS  
Pintada Creek topographic quadrangle; 37 degrees, 11 minutes, 48.10 seconds  
north latitude; and 103 degrees, 11 minutes, 19.40 seconds west longitude; UTM  
660,999 meters E., 4,118,234 meters N., zone 13, NAD83. (Colors are for dry soil  
unless otherwise noted.)

*Surface fragments:* about 15 percent subrounded gravel and 5 percent subrounded  
cobbles

A—0 to 7 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish  
brown (10YR 3/2) moist; weak medium granular structure; friable, slightly hard,



nonsticky and nonplastic; many fine roots; 5 percent cobbles and 20 percent gravel; strongly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

Bw—7 to 10 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many fine roots; 5 percent cobbles and 20 percent gravel; violently effervescent (5.0 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual wavy boundary.

Bk1—10 to 22 inches; pale brown (10YR 6/3) gravelly sandy clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; few fine roots; 5 percent fine distinct irregular carbonate masses throughout; 5 percent cobbles and 20 percent gravel; violently effervescent (15.0 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt wavy boundary.

2Bk2—22 to 35 inches; light yellowish brown (10YR 6/4) gravelly sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; 2 percent medium distinct irregular carbonate masses throughout; 16 percent gravel; violently effervescent (20.0 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt wavy boundary.

2Bk3—35 to 60 inches; very pale brown (10YR 8/2) gravelly loamy fine sand, pale brown (10YR 6/3) moist; massive; very friable, soft, nonsticky and nonplastic; 70 percent fine irregular carbonate masses throughout; 25 percent gravel; violently effervescent (35.0 percent calcium carbonate equivalent); strongly alkaline (pH 8.6).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 52 to 54 degrees F.

*Mean summer soil temperature:* 70 to 76 degrees F.

*Depth to diagnostic features:* 20 to 30 inches to abrupt textural change; 20 to 30 inches to the calcic horizon; 0 to 7 inches to secondary carbonates; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 7 to 15 inches

##### *Particle-size control section (weighted average):*

*Clay content:* 18 to 27 percent

*Sand content:* 45 to 65 percent

*Rock fragment content:* 20 to 35 percent

##### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 18 to 27 percent

*Rock fragment content:* 5 to 8 percent fine gravel, 10 to 19 percent medium and coarse gravel, 0 to 7 percent cobbles, and 0 to 1 percent stones

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 2.0 to 4.0 percent

*Cation-exchange capacity:* 15.5 to 23.0 meq/100 grams

##### *Bw and Bk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 2 to 4

*Clay content:* 18 to 27 percent

*Rock fragment content:* 5 to 8 percent fine gravel, 10 to 19 percent medium and coarse gravel, 0 to 7 percent cobbles, and 0 to 1 percent stones

*Calcium carbonate equivalent:* 1 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 15.1 to 22.7 meq/100 grams

2Bk2 horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 to 8 dry, 4 to 6 moist

*Chroma:* 2 to 4

*Texture:* gravelly sand, gravelly loamy sand, gravelly loamy fine sand, gravelly fine sand

*Clay content:* 0 to 8 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, 0 to 4 percent cobbles, and 0 to 1 percent stones

*Calcium carbonate equivalent:* 15 to 35 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Sodium adsorption ratio:* 0 to 2

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 0.0 to 7.3 meq/100 grams

## Kandrix Series

*Map unit(s):* KI, KwC, Kw

*Local phase(s):* Unspecified

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* fan remnants, fans, hills, ridges

*Position on landform:* rise, head slope, side slope

*Parent material:* alluvium, eolian deposits

*Elevation:* 4,700 to 6,000 feet (1,433 to 1,828 meters)

*Slope:* 1 to 9 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 135 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Aridic Calcustepts

### Typical Pedon

*Map unit in which located:* Kandrix-Wiley complex, 1 to 6 percent slopes

*Location in survey area:* Kandrix loam; in an area of Kandrix-Wiley complex, 1 to 6 percent slopes; in rangeland; about 1,750 feet east and 2,000 feet south of the northwest corner of section 19, T. 31 S., R. 51 W.; USGS Andrix topographic quadrangle; 37 degrees, 19 minutes, 54.30 seconds north latitude; and 103 degrees, 11 minutes, 9.10 seconds west longitude; UTM 660,718 meters E., 4,133,220 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 6 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; weak fine subangular blocky structure, and weak very fine granular structure; very friable, slightly hard, slightly sticky and slightly plastic; many fine roots throughout; strongly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
- Bw—6 to 14 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common very fine roots throughout; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Bk1—14 to 26 inches; light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; weak medium prismatic structure parting to moderate fine and medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; few very fine roots throughout; 15 percent patchy distinct pressure faces on vertical faces of peds; violently effervescent; moderately alkaline (pH 8.3); clear smooth boundary.
- Bk2—26 to 42 inches; very pale brown (10YR 7/3) silt loam, yellowish brown (10YR 5/4) moist; weak medium prismatic structure parting to weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few very fine roots throughout; 1 percent fine irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
- Bk3—42 to 51 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; very friable, soft, slightly sticky and slightly plastic; 3 percent fine irregular carbonate masses throughout; violently effervescent; strongly alkaline (pH 8.6); disseminated lime; clear smooth boundary.
- Bk4—51 to 65 inches; light yellowish brown (10YR 6/4) and dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; 10 percent fine irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.2).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 68 to 74 degrees F.

*Depth to diagnostic features:* 10 to 30 inches to the calcic horizon; 4 to 6 inches to the cambic horizon; 0 to 6 inches to secondary carbonates; 0 inches to the ochric epipedon

*Thickness of the calcic horizon:* 30 to 42 inches

*Thickness of the cambic horizon:* 6 to 14 inches

##### *Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 25 to 50 percent, with more than 15 percent fine and coarser sand

*Rock fragment content:* 0 to 5 percent

##### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 18 to 27 percent

*Rock fragment content:* 0 to 5 percent total: 0 to 5 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 1 to 5 percent  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 14.7 to 22.3 meq/100 grams

Bw horizon(s):

*Hue:* 7.5YR or 10YR  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 3 or 4  
*Texture:* loam, clay loam  
*Clay content:* 20 to 30 percent  
*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 3 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 16.2 to 23.9 meq/100 grams

Bk1, Bk2, Bk3 horizon(s):

*Hue:* 7.5YR or 10YR  
*Value:* 6 to 8 dry, 4 to 6 moist  
*Chroma:* 3 to 6  
*Texture:* sandy clay loam, silt loam, loam, clay loam  
*Clay content:* 20 to 35 percent  
*Rock fragment content:* 0 to 15 percent total: 0 to 9 percent fine gravel and 0 to 6 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 15 to 35 percent  
*Gypsum content:* 0 to 5 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 10.9 to 27.5 meq/100 grams

Bk4 horizon(s):

*Hue:* 7.5YR or 10YR  
*Value:* 5 to 7 dry, 4 or 5 moist  
*Chroma:* 3 to 6  
*Texture:* sandy clay loam, clay loam, fine sandy loam, loam  
*Clay content:* 15 to 27 percent  
*Calcium carbonate equivalent:* 5 to 35 percent  
*Gypsum content:* 0 to 5 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 10.9 to 21.2 meq/100 grams

## Kimera Series

*Map unit(s):* K2D, Km, KmC, KO  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* fan remnants, hills, plains, ridges

*Position on landform:* rise, head slope, side slope

*Parent material:* alluvium and/or eolian deposits

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Slope:* 1 to 9 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.4 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Ustic Haplocalcids

### Typical Pedon

*Map unit in which located:* Wilid-Kimera complex, 2 to 9 percent slopes

*Location in survey area:* Kimera loam; in an area of Wilid-Kimera complex, 2 to 9 percent slopes; in rangeland; about 500 feet north and 350 feet west of the southeast corner of section 26, T. 28 S., R. 52 W.; USGS Plug Hat Ranch topographic quadrangle; 37 degrees, 34 minutes, 20.80 seconds north latitude; and 103 degrees, 12 minutes, 20.30 seconds west longitude; UTM 658,411 meters E., 4,159,890 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 4 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine to medium roots; strongly effervescent (1 percent calcium carbonate equivalent); moderately alkaline (pH 7.9); clear smooth boundary.
- Bw—4 to 15 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; violently effervescent (7 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Bk1—15 to 28 inches; very pale brown (10YR 7/3) clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine roots; 2 percent fine distinct irregular carbonate masses throughout; violently effervescent (16 percent calcium carbonate equivalent); moderately alkaline (pH 8.3); clear smooth boundary.
- Bk2—28 to 47 inches; very pale brown (10YR 7/3) clay loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few very fine roots; 7 percent fine distinct irregular carbonate masses throughout; violently effervescent (18 percent calcium carbonate equivalent); moderately alkaline (pH 8.3); abrupt smooth boundary.
- Bk3—47 to 57 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; few fine roots; 15 percent faint clay films on vertical faces of peds; 5 percent medium distinct irregular carbonate masses throughout; violently effervescent (15 percent calcium carbonate equivalent); moderately alkaline (pH 8.3); abrupt smooth boundary.
- Bk4—57 to 65 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many fine roots; 4 percent medium distinct irregular carbonate masses throughout; violently effervescent (9 percent calcium carbonate equivalent); moderately alkaline (pH 8.3).

**Range in Characteristics***Soil moisture:**Soil moisture regime subclass:* ustic*Soil moisture regime class:* aridic (torric)*Seasonal pattern:* moist intermittently from April through August*Mean annual soil temperature:* 51 to 54 degrees F.*Mean summer soil temperature:* 70 to 73 degrees F.*Depth to diagnostic features:* 11 to 20 inches to the calcic horizon; 3 to 6 inches to the cambic horizon; 0 to 8 inches to secondary carbonates*Particle-size control section (weighted average):**Clay content:* 18 to 35 percent*Sand content:* 15 to 60 percent*Rock fragment content:* 0 to 15 percent*A horizon(s):**Hue:* 7.5YR or 10YR*Value:* 4 or 5 dry, 3 or 4 dry*Chroma:* 2 or 3*Texture:* loam, fine sandy loam*Clay content:* 15 to 27 percent*Rock fragment content:* 0 to 5 percent*Calcium carbonate equivalent:* 1 to 5 percent*Reaction:* slightly alkaline or moderately alkaline*Organic matter content:* 0.5 to 2.0 percent*Cation-exchange capacity:* 12.5 to 22.3 meq/100 grams*Bw horizon(s):**Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 or 4*Texture:* loam, silt loam, clay loam*Clay content:* 20 to 30 percent*Rock fragment content:* 0 to 5 percent*Calcium carbonate equivalent:* 5 to 15 percent*Reaction:* slightly alkaline or moderately alkaline*Organic matter content:* 0.5 to 1.0 percent*Cation-exchange capacity:* 16.2 to 23.9 meq/100 grams*Bk1, Bk2, Bk3 horizon(s):**Hue:* 7.5YR or 10YR*Value:* 5 to 7 dry, 4 to 6 moist*Chroma:* 3 to 6*Texture:* loam, clay loam, silt loam, sandy clay loam*Clay content:* 20 to 35 percent*Rock fragment content:* 0 to 10 percent*Calcium carbonate equivalent:* 15 to 35 percent*Gypsum content:* 0 to 2 percent*Electrical conductivity:* 0 to 4 mmhos/cm*Reaction:* pH 7.9 to 9.0*Organic matter content:* 0.5 to 1.0 percent*Cation-exchange capacity:* 16.2 to 27.5 meq/100 grams*Bk4 horizon(s):**Hue:* 7.5YR or 10YR*Value:* 5 or 7 dry, 4 to 6 moist



*Chroma:* 3 to 6  
*Texture:* fine sandy loam, loam  
*Clay content:* 15 to 27 percent  
*Rock fragment content:* 0 to 15 percent  
*Calcium carbonate equivalent:* 5 to 25 percent  
*Gypsum content:* 0 to 5 percent  
*Electrical conductivity:* 1 to 8 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 10.9 to 21.2 meq/100 grams

## La Brier Series

*Map unit(s):* Lb, Lo  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* depressions, lava plateaus  
*Position on landform:* dip  
*Parent material:* clayey alluvium derived from basalt  
*Elevation:* 5,000 to 7,100 feet (1,524 to 2,164 meters)  
*Slope:* 0 to 5 percent  
*Climatic data:*  
     *Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)  
     *Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.7 degrees C.)  
     *Frost-free period:* 120 to 145 days

*Taxonomic class:* Fine, mixed, superactive, mesic Torric Argiustolls

### Typical Pedon

*Map unit in which located:* La Brier silty clay loam, 0 to 3 percent slopes  
*Location in survey area:* La Brier silty clay loam; in an area of La Brier silty clay loam, 0 to 3 percent slopes; in rangeland; about 1,700 feet east and 950 feet south of the northwest corner of section 16, T. 35 S., R. 51 W.; USGS Furnish Canyon West topographic quadrangle; 37 degrees, 0 minutes, 4.30 seconds north latitude; and 103 degrees, 9 minutes, 5.10 seconds west longitude; UTM 644,486 meters E., 4,096,602 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches; very dark grayish brown (10YR 3/2) silty clay loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; firm, hard, slightly sticky and slightly plastic; many very fine and fine roots; noneffervescent; neutral (pH 7.0); abrupt smooth boundary.

Bt1—4 to 11 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark brown (10YR 2/2) moist; moderate fine prismatic structure parting to moderate fine and medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; many very fine and fine roots; 25 percent distinct clay films on all faces of peds; slightly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt2—11 to 21 inches; brown (10YR 4/3) silty clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate fine and medium subangular blocky structure; very firm, very hard, very sticky and very plastic; few



- fine roots and many very fine roots; 40 percent distinct clay films on all faces of peds; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
- Btk—21 to 36 inches; dark grayish brown (10YR 4/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to strong fine and medium angular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine roots; 45 percent distinct clay films on all faces of peds; few fine distinct irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
- Bk1—36 to 46 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; firm, hard, slightly sticky and slightly plastic; few very fine roots; 15 percent fine carbonate masses throughout; violently effervescent (10 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt smooth boundary.
- Bk2—46 to 72 inches; pink (7.5YR 7/4) silt loam, brown (7.5YR 5/4) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; violently effervescent (10 percent calcium carbonate equivalent); strongly alkaline (pH 8.6).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in April and May, moist intermittently from June to August

*Mean annual soil temperature:* 50 to 54 degrees F.

*Mean summer soil temperature:* 68 to 72 degrees F.

*Depth to diagnostic features:* 4 to 10 inches to the argillic horizon; 5 to 20 inches to secondary carbonates; 0 inches to the mollic epipedon

*Depth to the base of the argillic horizon:* 30 to 60 inches

*Thickness of the mollic epipedon:* 30 to 50 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 25 percent

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 27 to 35 percent

*Rock fragment content:* 0 to 3 percent cobbles and 0 to 2 percent stones

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 3.0 to 5.0 percent

*Cation-exchange capacity:* 22.7 to 29.3 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Texture:* silty clay, silty clay loam

*Clay content:* 35 to 50 percent

*Rock fragment content:* 0 to 3 percent cobbles

*Calcium carbonate equivalent:* 0 to 2 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 3.0 percent  
*Cation-exchange capacity:* 27.5 to 39.5 meq/100 grams

**Btk horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 4 or 5, 3 or 4 moist  
*Chroma:* 2 through 4  
*Texture:* silty clay loam, silty clay  
*Clay content:* 35 to 50 percent  
*Calcium carbonate equivalent:* 1 to 10 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 26.7 to 38.9 meq/100 grams

**BCK horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 5 or 6, 4 or 5 moist  
*Chroma:* 2 through 4  
*Texture:* silty clay loam, silt loam  
*Clay content:* 20 to 35 percent  
*Rock fragment content:* 2 to 5 percent fine gravel, 3 to 7 percent medium and coarse gravel, and 0 to 3 percent cobbles  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 14.2 to 27.5 meq/100 grams

**C horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 3 or 4  
*Clay content:* 20 to 27 percent  
*Rock fragment content:* 2 to 5 percent fine gravel, 3 to 7 percent medium and coarse gravel, and 0 to 3 percent cobbles  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Gypsum content:* 0 to 4 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

## **Lanola Series**

*Map unit(s):* La  
*Depth class:* shallow  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* hills, scarps  
*Position on landform:* crest, head slope  
*Parent material:* slope alluvium and residuum weathered from limestone  
*Elevation:* 5,500 to 7,000 feet (1,676 to 2,134 meters)

*Slope:* 3 to 25 percent

*Climatic data:*

*Mean annual precipitation:* 15 to 17 inches (381 to 432 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 120 to 145 days

*Taxonomic class:* Loamy, carbonatic, mesic Aridic Haplustolls

### **Typical Pedon**

*Map unit in which located:* Lanola loam, 3 to 25 percent slopes

*Location in survey area:* Lanola channery loam; in an area of Lanola loam, 3 to 25 percent slopes; in shrub land; about 55 feet east and 1,600 feet north of the southwest corner of section 5, T. 35 S., R. 59 W.; USGS Trinchera topographic quadrangle; 37 degrees, 1 minute, 12.70 seconds north latitude; and 104 degrees, 2 minutes, 56.00 seconds west longitude; UTM 584,604 meters E., 4,097,530 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 30 percent angular limestone gravel

A—0 to 7 inches; brown (10YR 5/3) channery loam, dark brown (10YR 3/3) moist; moderate very fine and fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine to medium roots; 25 percent channers; violently effervescent (49 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.

Bk—7 to 12 inches; light gray (10YR 7/2) channery silt loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; common very fine and fine roots; 9 percent medium distinct irregular carbonate masses throughout; 17 percent channers; violently effervescent (56 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt smooth boundary.

R—12 to 60 inches unweathered bedrock; indurated; hard fractured limestone.

### **Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 50 to 53 degrees F.

*Mean summer soil temperature:* 68 to 73 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 0 inches to the mollic epipedon; 7 to 20 inches to lithic contact

*Thickness of diagnostic feature:* 7 to 20 inches to the mollic epipedon

*Particle-size control section (weighted average):*

*Clay content:* 15 to 27 percent

*Sand content:* 20 to 45 percent

*Rock fragment content:* 0 to 35 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* channery loam, channery silt loam

*Clay content:* 15 to 27 percent  
*Rock fragment content:* 0 to 30 percent limestone channers and 0 to 5 percent limestone cobbles  
*Calcium carbonate equivalent:* 35 to 50 percent  
*Gypsum content:* 0 to 5 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 2.0 to 4.0 percent  
*Cation-exchange capacity:* 13.5 to 26.1 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR or 2.5Y  
*Value:* 5 to 7 dry, 3 to 6 moist  
*Chroma:* 2 or 3  
*Texture:* channery loam, channery silt loam  
*Clay content:* 18 to 30 percent  
*Rock fragment content:* 15 to 30 percent limestone channers and 0 to 5 percent limestone cobbles  
*Calcium carbonate equivalent:* 40 to 75 percent  
*Gypsum content:* 0 to 5 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 11.0 to 23.9 meq/100 grams

## Las Animas Series

*Map unit(s):* Ls  
*Depth class:* very deep  
*Drainage class:* poorly drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* flood plains  
*Position on landform:* tread  
*Parent material:* sandy alluvium  
*Elevation:* 4,400 to 5,900 feet (1,341 to 1,799 meters)  
*Slope:* 0 to 1 percent  
*Climatic data:*  
     *Mean annual precipitation:* 12 to 15 inches (305 to 381 millimeters)  
     *Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
     *Frost-free period:* 125 to 155 days  
*Taxonomic class:* Coarse-loamy, mixed, superactive, calcareous, mesic Typic Fluvaquents

### Typical Pedon

*Map unit in which located:* Las Animas loam, 0 to 1 percent slopes  
*Location in survey area:* Las animas loam; in an area of Las animas loam, 0 to 1 percent slopes; in cropland; about 1,200 feet north and 1,300 feet east of the southwest corner of section 5, T. 33 S., R. 63 W.; USGS Trinidad East topographic quadrangle; 37 degrees, 11 minutes, 43.00 seconds north latitude; and 104 degrees, 28 minutes, 50.70 seconds west longitude; UTM 546,082 meters E., 4,116,664 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 3 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; friable, slightly hard, nonsticky and nonplastic; many fine and medium roots throughout; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Cg1—3 to 11 inches; grayish brown (10YR 5/2) fine sandy loam, dark gray (10YR 4/1) moist; moderate medium platy structure; friable, slightly hard, nonsticky and nonplastic; many fine and medium roots throughout; 15 percent fine faint irregular dark gray (10YR 4/1) moist, iron depletions in matrix; strongly effervescent; moderately alkaline (pH 8.4); clear smooth boundary.
- Cg2—11 to 23 inches; brown (10YR 5/3) stratified fine sandy loam to sandy loam, brown (10YR 4/3) moist; weak fine platy structure; very friable, soft, nonsticky and nonplastic; many fine and medium roots throughout; 15 percent medium distinct irregular dark yellowish brown (10YR 4/6) masses of oxidized iron in matrix and 35 percent medium prominent irregular dark gray (N/4) moist, iron depletions in matrix; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.
- C1—23 to 26 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; moderate medium platy structure; friable, slightly hard, slightly sticky and slightly plastic; common fine and medium roots throughout; 12 percent medium prominent irregular dark yellowish brown (10YR 4/6) moist, masses of oxidized iron in matrix; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.
- C2—26 to 36 inches; gray (10YR 5/1) loamy sand, dark gray (10YR 4/1) moist; massive; very friable, soft, nonsticky and nonplastic; few very fine and fine roots throughout; 10 percent fine prominent irregular dark yellowish brown (10YR 4/6) moist, masses of oxidized iron in matrix; slightly alkaline (pH 7.5); clear wavy boundary.
- C3—36 to 60 inches; pale brown (10YR 6/3) sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots throughout; 30 percent fine prominent irregular yellowish brown (10YR 5/6) moist, masses of oxidized iron in matrix; 10 percent gravel; slightly alkaline (pH 7.6).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aquic

*Seasonal pattern:* moist from April through September

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 6 to 18 inches to redox depletions with chroma 2 or less; 12 to 24 inches to aquic conditions; 10 to 18 inches to secondary carbonates; and 0 inches to the ochric epipedon. Continuous subhorizons with visible salt accumulation may occur at any depth.

*Seasonal high water table:* from April through September

*Depth to top:* 12 to 24 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 10 to 18 percent

*Sand content:* 25 to 70 percent

*Rock fragment content:* 0 to 15 percent

#### *A horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 4 or 5 dry, 2 or 3 moist  
*Chroma:* 2 or 3  
*Clay content:* 15 to 25 percent  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* pH 7.9 to 8.4  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 12.5 to 20.8 meq/100 grams

**C and Cg horizon(s):**

*Hue:* 10YR or 7.5YR  
*Value:* 5 or 6 dry, 3 or 4 moist  
*Chroma:* 1 to 3  
*Texture:* stratified sandy loam, fine sandy loam, sandy loam, loamy sand, sand, loamy fine sand, or silt loam  
*Clay content:* 3 to 18 percent  
*Rock fragment content:* 0 to 9 percent fine gravel and 0 to 6 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 10 percent  
*Gypsum content:* 0 to 5 percent  
*Electrical conductivity:* 0 to 8 mmhos/cm  
*Gypsum content:* 0 to 5 percent  
*Sodium adsorption ratio:* 0 to 5  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 0.0 to 15.1 meq/100 grams

## Leadville Series

*Map unit(s):* Ld, SL, LH  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* mountain slopes  
*Position on landform:* mountainflank  
*Parent material:* colluvium derived from sandstone  
*Elevation:* 8,000 to 10,800 feet (2,439 to 3,292 meters)  
*Slope:* 5 to 50 percent  
*Climatic data:*

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)  
*Mean annual air temperature:* 37 to 42 degrees F. (3.0 to 5.5 degrees C.)  
*Frost-free period:* 40 to 70 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Ustic Glossocryalfs

### Typical Pedon

*Map unit in which located:* Leadville-Howlett complex, 5 to 40 percent slopes, stony  
*Location in survey area:* Leadville cobbly sandy loam; in an area of Leadville-Howlett complex, 5 to 40 percent slopes, stony; in forest land; an unsectionalized area about 1 mile from the intersection of Wilkens and Hell Canyon in Hell Canyon, T. 33 S., R. 69 W.; USGS Stonewall topographic quadrangle; 37 degrees, 10 minutes, 28.00 seconds north latitude; and 105 degrees, 4 minutes, 28.40 seconds west longitude; UTM 493,381 meters E., 4,114,222 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* about 2 percent stones



- Oi—0 to 2 inches; slightly decomposed plant material; mainly needles, twigs, and moss.
- E—2 to 16 inches; light reddish brown (5YR 6/3) cobbly sandy loam, reddish brown (5YR 4/3) moist; moderate fine and medium granular structure; very friable, soft, nonsticky and nonplastic; many very fine and fine roots and common coarse roots; 5 percent stones, 10 percent cobbles, and 15 percent gravel; noneffervescent; neutral (pH 6.6); clear smooth boundary.
- B/E—16 to 22 inches; 60 percent light reddish brown (2.5YR 6/3) and 40 percent reddish brown (2.5YR 4/4) very cobbly sandy loam, red (2.5YR 4/6) moist; moderate fine subangular blocky structure; friable, slightly hard, nonsticky and nonplastic; many very fine and fine roots and many medium and coarse roots; 10 percent distinct clay films on all faces of peds; 2 percent stones, 15 percent gravel, and 20 percent cobbles; noneffervescent; slightly acid (pH 6.2); clear smooth boundary.
- Bt—22 to 48 inches; reddish brown (2.5YR 5/4) very cobbly sandy clay loam, red (2.5YR 4/6) moist; strong medium subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; many very fine and fine roots and common coarse roots; 55 percent distinct clay films on all faces of peds 15 percent gravel and 40 percent cobbles; noneffervescent; slightly acid (pH 6.2); gradual wavy boundary.
- BCt—48 to 65 inches; red (2.5YR 4/6) very cobbly sandy clay loam, dark red (2.5YR 3/6) moist; moderate medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; common very fine and fine roots and common coarse roots; 20 percent distinct clay films on all faces of peds; 2 percent stones, 15 percent gravel, and 30 percent cobbles; noneffervescent; neutral (pH 6.8).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist continuously with peak periods from April through August

*Mean annual soil temperature:* 38 to 42 degrees F.

*Mean summer soil temperature:* 51 to 56 degrees F.

*Depth to diagnostic features:* 2 to 4 inches to the albic horizon; 14 to 23 inches to the glossic horizon; 20 to 24 inches to the argillic horizon

*Thickness of the glossic horizon:* 4 to 12 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Sand content:* 40 to 65 percent

*Rock fragment content:* 35 to 60 percent, dominantly cobbles

#### *E horizon(s):*

*Hue:* 5YR or 7.5YR

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 2 or 3

*Clay content:* 10 to 20 percent

*Rock fragment content:* 4 to 5 percent fine gravel, 5 to 12 percent medium and coarse gravel, 5 to 12 percent cobbles, and 1 to 6 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 7.6 to 16.6 meq/100 grams

#### *B/E horizon(s):*

*Hue:* 5YR or 7.5YR



*Value:* 5 or 6 dry, 4 or 5 moist (B); 5 to 7 dry, 4 to 6 moist (E)

*Chroma:* 3 to 6 (B); 2 or 3 (E)

*Texture:* very cobbly sandy loam

*Clay content:* 10 to 20 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 15 to 25 percent medium and coarse gravel, 15 to 20 percent cobbles, and 0 to 5 percent stones

*Reaction:* medium acid to neutral

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 7.6 to 16.2 meq/100 grams

**Bt horizon(s):**

*Hue:* 10R to 5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* very cobbly clay loam, very cobbly sandy clay loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 2 to 5 percent fine gravel, 8 to 10 percent medium and coarse gravel, 25 to 40 percent cobbles, and 0 to 5 percent stones

*Reaction:* medium acid to neutral

*Base saturation:* 60 to 100 percent

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

**BCt horizon(s):**

*Hue:* 10R to 5YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 3 to 6

*Clay content:* 20 to 30 percent

*Rock fragment content:* 2 to 5 percent fine gravel, 6 to 15 percent medium and coarse gravel, 25 to 35 percent cobbles, and 1 to 5 percent stones

*Reaction:* slightly acid or neutral

*Base saturation:* 60 to 100 percent

*Cation-exchange capacity:* 14.2 to 23.3 meq/100 grams

## **Limon Series**

*Map unit(s):* LoA

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* flood plains, terraces

*Position on landform:* tread

*Parent material:* clayey alluvium

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 0 to 1 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine, smectitic, calcareous, mesic Ustertic Torriorthents

### **Typical Pedon**

*Map unit in which located:* Limon silty clay loam, 0 to 1 percent slopes

*Location in survey area:* Limon silty clay loam; in an area of Limon silty clay loam,

0 to 1 percent slopes; about 1,700 feet east and 1,700 feet south of the northwest corner of section 29, T. 29 S., R. 64 W.; USGS The Hogback topographic quadrangle; 37 degrees, 29 minutes, 36.10 seconds north latitude; and 104 degrees, 35 minutes, 5.90 seconds west longitude; UTM 536,687 meters E., 4,149,686 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 6 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak very fine granular structure; firm, hard, moderately sticky and moderately plastic; common; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- AC—6 to 20 inches; grayish brown (2.5Y 5/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; firm, extremely hard, moderately sticky and moderately plastic; common; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Bky—20 to 60 inches; light yellowish brown (2.5Y 6/3) silty clay loam, light olive brown (2.5Y 5/3) moist; massive; very firm, extremely hard, very sticky and very plastic; few very fine and fine roots; 7 percent fine threadlike gypsum crystals; 3 percent distinct irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.2).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 0 inches to the ochric epipedon

##### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 20 percent

*Rock fragment content:* 0 to 5 percent

##### *A horizon(s):*

*Hue:* 10YR to 2.5Y

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 2 or 3

*Clay content:* 30 to 40 percent

*Calcium carbonate equivalent:* 1 to 6 percent

*Electrical conductivity:* 2 to 4 mmhos/cm

*Sodium adsorption ratio:* 1 to 5

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 15.9 to 25.6 meq/100 grams

##### *AC horizon(s):*

*Hue:* 10YR to 2.5Y

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 2 or 3

*Texture:* silty clay, clay, silty clay loam

*Clay content:* 35 to 60 percent

*Calcium carbonate equivalent:* 1 to 10 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 2 to 8 mmhos/cm

*Sodium adsorption ratio:* 1 to 10

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 6.0 to 28.9 meq/100 grams

Bk horizon(s):

*Hue:* 10YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Texture:* silty clay, clay, silty clay loam

*Clay content:* 35 to 60 percent

*Calcium carbonate equivalent:* 1 to 8 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 2 to 8 mmhos/cm

*Sodium adsorption ratio:* 1 to 10

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 6.0 to 28.9 meq/100 grams

## Littlepine Series

*Map unit(s):* LW, Lt

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fan remnants, hills

*Position on landform:* base slope, side slope, rise

*Parent material:* alluvium and slope alluvium derived from sandstone

*Elevation:* 7,000 to 9,000 feet (2,134 to 2,743 meters)

*Slope:* 3 to 30 percent

*Climatic data:*

*Mean annual precipitation:* 18 to 22 inches (457 to 559 millimeters)

*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)

*Frost-free period:* 70 to 100 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Typic Haplustalfs

### Typical Pedon

*Map unit in which located:* Littlepine fine sandy loam, 3 to 15 percent slopes

*Location in survey area:* Littlepine fine sandy loam; in an area of Littlepine sandy loam, 3 to 15 percent slopes; in forest land; about 1,800 feet west and 1,950 feet south of the northeast corner of section 32, T. 31 S., R. 65 W.; USGS Delagua topographic quadrangle; 37 degrees, 18 minutes, 18.80 seconds north latitude; and 104 degrees, 42 minutes, 2.80 seconds west longitude; UTM 526,518 meters E., 4,128,766 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 1 inch; slightly decomposed plant material; needles and twigs.

A—1 inch to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam, black (10YR 2/1) moist; moderate fine granular structure; very friable, soft, nonsticky and nonplastic; many fine roots throughout; noneffervescent; neutral (pH 6.6); abrupt wavy boundary.

E—3 to 6 inches; brown (10YR 5/3) fine sandy loam, brown (10YR 4/3) crushed, moist; weak fine subangular blocky structure; very friable, slightly hard, nonsticky

- and nonplastic; common fine roots throughout and common medium roots throughout; noneffervescent; slightly acid (pH 6.2); abrupt wavy boundary.
- Bt1—6 to 16 inches; brown (7.5YR 4/3) sandy clay loam, dark brown (7.5YR 3/4) moist; strong medium prismatic structure parting to strong fine subangular blocky structure; very firm, extremely hard, slightly sticky and slightly plastic; common fine roots throughout and common medium roots throughout; 5 percent distinct sand coats on vertical faces of peds and 30 percent distinct clay films on vertical faces of peds; noneffervescent; neutral (pH 6.8); clear smooth boundary.
- Bt2—16 to 30 inches; brown (7.5YR 4/4) sandy clay loam, brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to strong medium subangular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; few fine roots throughout and few medium roots throughout; 35 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 6.8); gradual smooth boundary.
- Bt3—30 to 48 inches; brown (7.5YR 5/4) clay loam, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; firm, very hard, slightly sticky and slightly plastic; few fine roots throughout and few medium roots throughout; 45 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 7.0); clear smooth boundary.
- BC—48 to 66 inches; yellowish brown (10YR 5/6) sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 15 percent distinct pressure faces on vertical faces of peds; noneffervescent; neutral (pH 7.2); clear smooth boundary.
- C—66 to 72 inches; yellowish brown (10YR 5/6) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; very friable, slightly hard, slightly sticky and slightly plastic; noneffervescent; neutral (pH 7.2).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some part from April through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 55 to 59 degrees F.

*Depth to diagnostic features:* 0 to 2 inches to the ochric epipedon; 2 to 4 inches to albic materials; 4 to 10 inches to the argillic horizon

*Depth to the base of the argillic horizon:* 30 to 53 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 25 to 35 percent

*Sand content:* 40 to 55 percent

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 10 to 20 percent

*Sand content:* 50 to 75 percent

*Rock fragment content:* 0 to 3 percent fine gravel

*Reaction:* slightly acid or neutral

*Organic matter content:* 2.0 to 4.0 percent

*Cation-exchange capacity:* 9.1 to 17.5 meq/100 grams

## E horizon(s):

*Hue:* 7.5YR or 10YR*Value:* 5 or 7 dry, 3 to 5 moist*Chroma:* 2 or 3*Texture:* fine sandy loam, sandy loam*Clay content:* 10 to 20 percent*Sand content:* 50 to 75 percent*Rock fragment content:* 0 to 5 percent total: 0 to 5 percent fine gravel and  
0 to 5 percent medium and coarse gravel*Reaction:* slightly acid or neutral*Organic matter content:* 0.5 to 2.0 percent*Cation-exchange capacity:* 8.6 to 17.0 meq/100 grams

## Bt horizon(s):

*Hue:* 7.5YR or 10YR*Value:* 5 to 6 dry, 4 to 5 moist*Chroma:* 3 to 6*Texture:* sandy clay loam, clay loam*Clay content:* 20 to 35 percent*Sand content:* 40 to 75 percent*Rock fragment content:* 0 to 5 percent total: 0 to 5 percent fine gravel and  
0 to 5 percent medium and coarse gravel*Reaction:* slightly acid or neutral*Organic matter content:* 0.0 to 1.0 percent*Cation-exchange capacity:* 14.2 to 27.5 meq/100 grams

## BC horizon(s):

*Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 to 6*Texture:* sandy loam, sandy clay loam*Clay content:* 15 to 27 percent*Sand content:* 55 to 75 percent*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium  
and coarse gravel*Reaction:* slightly acid or neutral*Organic matter content:* 0.0 to 0.5 percent*Cation-exchange capacity:* 10.9 to 21.2 meq/100 grams

## C horizon(s):

*Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 to 6*Texture:* sandy loam, coarse sandy loam*Clay content:* 7 to 20 percent*Sand content:* 55 to 75 percent*Rock fragment content:* 0 to 8 percent fine gravel, 0 to 6 percent medium and  
coarse gravel, and 0 to 1 percent cobbles*Reaction:* slightly acid to slightly alkaline*Organic matter content:* 0.0 to 0.5 percent*Cation-exchange capacity:* 5.5 to 16.2 meq/100 grams

## Lorencito Series

*Map unit(s):* LvD, LST, LRT, TL

*Depth class:* shallow

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* fan remnants, hills, pediments, structural benches

*Position on landform:* side slope, head slope, rise

*Parent material:* slope alluvium and residuum weathered from shale and siltstone

*Elevation:* 5,500 to 7,800 feet (1,676 to 2,378 meters)

*Slope:* 3 to 65 percent

*Climatic data:*

*Mean annual precipitation:* 15 to 18 inches (381 to 457 millimeters)

*Mean annual air temperature:* 46 to 52 degrees F. (8.0 to 11.0 degrees C.)

*Frost-free period:* 120 to 140 days

*Taxonomic class:* Clayey, mixed, superactive, nonacid, mesic, shallow Aridic Ustorthents

### Typical Pedon

*Map unit in which located:* Lorencito-Sarcillo-Trujillo complex, 3 to 25 percent slopes

*Location in survey area:* Lorencito channery clay loam; in an area of Lorencito-Sarcillo-Trujillo complex, 3 to 25 percent slopes; in forest land; about 1,150 feet south and 2,450 feet east of the northwest corner of section 27, T. 33 S., R. 65 W.; USGS Madrid topographic quadrangle; 37 degrees, 8 minutes, 49.00 seconds north latitude; and 104 degrees, 39 minutes, 41.00 seconds west longitude; UTM 530,268 meters E., 4,111,233 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches; grayish brown (2.5Y 5/2) channery clay loam, dark grayish brown (2.5Y 4/2) and grayish brown (2.5Y 5/2) crushed, moist; moderate very fine granular structure; firm, hard, moderately sticky and moderately plastic; many very fine and fine roots; 30 percent channers; noneffervescent; neutral (pH 6.8); clear smooth boundary.

AC—4 to 16 inches; light olive brown (2.5Y 5/4) clay, dark grayish brown (2.5Y 4/2) and light olive brown (2.5Y 5/4) crushed, moist; weak coarse prismatic structure parting to moderate very fine and fine subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; many very fine and fine roots; 20 percent shale parachanners; noneffervescent; neutral (pH 6.8); clear smooth boundary.

Cr—16 to 60 inches; weathered bedrock; very weakly cemented; soft shale and siltstone.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently in some part from April through August

*Mean annual soil temperature:* 48 to 52 degrees F.

*Mean summer soil temperature:* 65 to 70 degrees F.



*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)

*Depth to diagnostic features:* 0 inches to the ochric epipedon; 10 to 20 inches to paralithic contact

*Particle-size control section (weighted average):*

*Clay content:* 35 to 45 percent

*Sand content:* 10 to 35 percent

*Rock fragment content:* 5 to 35 percent channers and gravel

A horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 2 or 3

*Texture of the fine-earth fraction:* clay loam

*Clay content:* 30 to 40 percent

*Rock fragment content:* 5 to 35 percent total: 0 to 19 percent fine gravel, 5 to 25 percent medium and coarse gravel, and 0 to 1 percent cobbles

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 21.2 to 31.8 meq/100 grams

AC horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 2 or 3

*Texture of the fine-earth fraction:* clay, clay loam, silty clay

*Clay content:* 35 to 60 percent

*Rock fragment content:* 5 to 25 percent weakly cemented shale channers, 0 to 8 percent fine gravel, 0 to 7 percent medium and coarse gravel, and 0 to 5 percent cobbles

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 2

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 23.4 to 44.6 meq/100 grams

## Manvel Series

*Map unit(s):* MvC

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fans, plains

*Position on landform:* rise

*Parent material:* silty alluvium derived from limestone and shale

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Slope:* 1 to 5 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, calcareous, mesic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Manvel silt loam, 1 to 5 percent slopes



*Location in survey area:* Manvel silt loam; in an area of Manvel silt loam, 1 to 5 percent slopes; in rangeland; about 1,850 feet east and 25 feet south of the northwest corner of section 24, T. 30 S., R. 62 W.; USGS Seven Lakes Reservoir topographic quadrangle; 37 degrees, 25 minutes, 29.50 seconds north latitude; and 104 degrees, 17 minutes, 39.60 seconds west longitude; UTM 562,436 meters E., 4,142,239 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 4 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate very fine granular structure; very friable, slightly hard, slightly sticky and slightly plastic; strongly effervescent (5 percent calcium carbonate); moderately alkaline (pH 8.0); clear smooth boundary.
- Bk1—4 to 12 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; friable, hard, moderately sticky and slightly plastic; violently effervescent (20 percent calcium carbonate); moderately alkaline (pH 8.2); gradual smooth boundary.
- Bk2—12 to 60 inches; pale brown (10YR 6/3) silt loam, brown (10YR 5/3) moist; massive; friable, hard, slightly sticky and slightly plastic; violently effervescent (20 percent calcium carbonate); moderately alkaline (pH 8.2).

#### **Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 0 to 4 inches to secondary carbonates; 0 inches to the ochric epipedon

*Calcium carbonate equivalent:* 15 to 40 percent

*Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Silt content:* 40 to 70 percent

*Sand content:* 5 to 25 percent, with less than 15 percent fine or coarser sand

*A horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Clay content:* 15 to 27 percent

*Rock fragment content:* 0 to 3 percent fine gravel

*Calcium carbonate equivalent:* 1 to 10 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* pH 7.9 to 8.4

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 12.5 to 22.3 meq/100 grams

*C horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 2 to 4

*Texture:* silt loam, silty clay loam

*Clay content:* 18 to 35 percent

*Rock fragment content:* 0 to 15 percent fine gravel

*Calcium carbonate equivalent:* 15 to 40 percent

*Gypsum content:* 0 to 5 percent

*Electrical conductivity:* 2 to 4 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* moderately alkaline or strongly alkaline

Segregated carbonate masses are present, but are discontinuous in the control section

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 12.9 to 27.5 meq/100 grams

## Manzanola Series

*Map unit(s):* MzA, MzB

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* drainageways, fans, plains, terraces

*Position on landform:* talf, tread

*Parent material:* loess and alluvium derived from calcareous shale

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Slope:* 0 to 4 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Ustic Haplargids

### Typical Pedon

*Map unit in which located:* Manzanola silty clay loam, 1 to 4 percent slopes

*Location in survey area:* Manzanola silty clay loam; in an area of Manzanola silty clay loam, 1 to 4 percent slopes; in rangeland; about 2,450 feet east and 900 feet north of the southwest corner of section 6, T. 34 S., R. 59 W.; USGS Trinchera topographic quadrangle; 37 degrees, 6 minutes, 17.70 seconds north latitude; and 104 degrees, 3 minutes, 31.00 seconds west longitude; UTM 583,646 meters E., 4,069,925 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 5 inches; grayish brown (10YR 5/2) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; violently effervescent (10 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); clear smooth boundary.

Bt1—5 to 9 inches; grayish brown (10YR 5/2) silty clay, dark grayish brown (10YR 4/2) moist; weak fine prismatic structure parting to weak medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; many very fine and fine roots; 10 percent distinct clay films on all faces of peds; violently effervescent (11 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.

Bt2—9 to 17 inches; brown (10YR 5/3) silty clay, brown (10YR 4/3) moist; strong coarse prismatic structure parting to strong medium angular blocky structure; very firm, extremely hard, very sticky and very plastic; common very fine and fine roots; 45 percent distinct clay films on all faces of peds; violently effervescent (11 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.

- Btk—17 to 30 inches; brown (10YR 5/3) silty clay, brown (10YR 4/3) moist; moderate coarse prismatic structure parting to strong medium angular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine and fine roots; 45 percent distinct clay films on all faces of peds; 1 percent fine distinct irregular carbonate masses throughout; violently effervescent (13 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.
- Bk—30 to 50 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; few very fine roots; 1 percent fine distinct irregular carbonate masses throughout; violently effervescent (16 percent calcium carbonate equivalent); strongly alkaline (pH 8.6); clear smooth boundary.
- Bky—50 to 60 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; massive; very firm, very hard, slightly sticky and slightly plastic; few very fine roots; 2 percent fine distinct irregular gypsum crystals throughout and 10 percent medium distinct irregular carbonate masses throughout; violently effervescent (14 percent calcium carbonate equivalent); strongly alkaline (pH 8.6).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 68 to 73 degrees F.

*Depth to diagnostic features:* 2 to 6 inches to the argillic horizon; 0 to 8 inches to secondary carbonates; 0 inches to the ochric epipedon

*Depth to the base of the argillic horizon:* 20 to 38 inches

*Calcium carbonate equivalent:* 2 to 15 percent

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 15 to 25 percent, at least 10 percent very fine sand

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 2 or 3

*Texture:* silty clay loam

*Clay content:* 27 to 40 percent

*Calcium carbonate equivalent:* 1 to 10 percent

*Electrical conductivity:* 0 to 3 mmhos/cm

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 3.0 percent

*Cation-exchange capacity:* 14.5 to 36.8 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* silty clay loam, clay loam, silty clay

*Clay content:* 35 to 50 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Electrical conductivity:* 0 to 3 mmhos/cm

*Sodium adsorption ratio:* 0 to 3

*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 18.2 to 31.0 meq/100 grams

**Btk horizon(s):**

*Hue:* 7.5YR to 2.5Y  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 2 to 4  
*Texture:* silty clay, clay loam, silty clay loam  
*Clay content:* 35 to 50 percent  
*Calcium carbonate equivalent:* 5 to 25 percent  
*Electrical conductivity:* 1 to 3 mmhos/cm  
*Sodium adsorption ratio:* 1 to 10  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 18.2 to 31.0 meq/100 grams

**Bk & Bkny horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 6 or 6 dry; 4 or 5 moist  
*Chroma:* 2 to 4  
*Texture:* silty clay loam, clay loam  
*Clay content:* 30 to 40 percent  
*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 5 to 30 percent  
*Gypsum content:* 0 to 3 percent  
*Electrical conductivity:* 2 to 8 mmhos/cm  
*Sodium adsorption ratio:* 4 to 15  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 5.2 to 20.4 meq/100 grams

## **Manzanst Series**

*Map unit(s):* LG, MnB, MnA  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* fans, plains, terrace  
*Position on landform:* rise, tal, tread  
*Parent material:* loess and alluvium derived from clayey shale  
*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)  
*Slope:* 0 to 8 percent  
*Climatic data:*  
*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.7 degrees C.)  
*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Aridic Haplustalfs

### **Typical Pedon**

*Map unit in which located:* Manzanst silty clay loam, 1 to 3 percent slopes  
*Location in survey area:* Manzanst silty clay loam; in an area of Manzanst silty clay loam, 1 to 3 percent slopes; about 500 feet west and 750 feet south of the

northeast corner of section 6, T. 31 S., R. 54 W.; USGS Plum Canyon topographic quadrangle; 37 degrees, 22 minutes, 41.50 seconds north latitude; and 103 degrees, 30 minutes, 6.70 seconds west longitude; UTM 632,639 meters E., 4,137,880 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 3 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure, and weak fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; noneffervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
- Bt1—3 to 6 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) and dark grayish brown (10YR 4/2) crushed, moist; moderate fine prismatic structure parting to moderate fine and medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; common very fine and fine roots; 20 percent distinct clay films on all faces of peds; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Bt2—6 to 20 inches; brown (10YR 5/3) silty clay, brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; common very fine and fine roots; 25 percent distinct clay films on all faces of peds; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Btk—20 to 28 inches; brown (10YR 5/3) silty clay, brown (10YR 4/3) moist; weak coarse prismatic structure parting to moderate medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine and fine roots; 45 percent distinct clay films on all faces of peds; 10 percent fine distinct carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.4); abrupt smooth boundary.
- Bk1—28 to 40 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; 2 percent fine distinct carbonate masses throughout; violently effervescent; strongly alkaline (pH 8.6); abrupt smooth boundary.
- Bk2—40 to 65 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 5/4) moist; massive; firm, very hard, moderately sticky and moderately plastic; 20 percent medium distinct carbonate masses throughout; violently effervescent; strongly alkaline (pH 8.6).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 49 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 2 to 6 inches to the argillic horizon; 0 to 6 inches to secondary carbonates; 0 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 20 to 37 inches

##### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 15 percent

##### *A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 to 6, 3 to 5 moist

*Chroma:* 2 or 3

*Clay content:* 27 to 40 percent  
*Calcium carbonate equivalent:* 0 to 5 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 1.0 to 2.0 percent  
*Cation-exchange capacity:* 18.3 to 32.2 meq/100 grams

**Bt & Btk horizon(s):**

*Hue:* 10YR or 2.5Y  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 2 or 3  
*Texture:* silty clay loam, clay, silty clay  
*Clay content:* 35 to 50 percent  
*Calcium carbonate equivalent:* 5 to 10 percent  
*Gypsum content:* 0 to 1 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 1 to 10  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 18.2 to 31.0 meq/100 grams

**Bk horizon(s):**

*Hue:* 10YR or 2.5Y  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 2 or 4  
*Texture:* silty clay loam, clay loam  
*Clay content:* 30 to 40 percent  
*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Gypsum content:* 0 to 3 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 1 to 10  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 5.2 to 20.4 meq/100 grams

## **Mauricanyon Series**

*Map unit(s):* MoA, MaB, MoB  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* flood plains, terraces  
*Position on landform:* tread  
*Parent material:* loamy alluvium  
*Elevation:* 4,500 to 6,800 feet (1,372 to 2,073 meters)  
*Slope:* 0 to 3 percent  
*Climatic data:*  
     *Mean annual precipitation:* 13 to 17 inches (331 to 432 millimeters)  
     *Mean annual air temperature:* 47 to 53 degrees F. (8.4 to 11.7 degrees C.)  
     *Frost-free period:* 120 to 155 days  
*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Cumulic Haplustolls



### Typical Pedon

*Map unit in which located:* Mauricanyon loam, 0 to 2 percent slopes

*Location in survey area:* Mauricanyon loam; in an area of Mauricanyon loam, 0 to 2 percent slopes; in rangeland; about 900 feet east and 300 feet north of the southwest corner of section 33, T. 34 S., R. 65 W.; USGS Valdez topographic quadrangle; 37 degrees, 2 minutes, 5.50 seconds north latitude; and 104 degrees, 40 minutes, 56.00 seconds west longitude; UTM 528,262 meters E., 4,098,787 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A1—0 to 3 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 6.6); abrupt smooth boundary.
- A2—3 to 6 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate very fine platy structure, and weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.0); abrupt smooth boundary.
- Bw—6 to 25 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; weak coarse prismatic structure; firm, very hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.2); clear smooth boundary.
- Bk—25 to 60 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; massive; friable, hard, slightly sticky and slightly plastic; common very fine roots throughout; violently effervescent (4 percent calcium carbonate equivalent); moderately alkaline (pH 8.0).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 49 to 54 degrees F.

*Mean summer soil temperature:* 68 to 72 degrees F.

*Depth to diagnostic features:* 0 inches to the mollic epipedon; 20 to 30 inches to secondary carbonates

*Thickness of the mollic epipedon:* 28 to 72 inches

*Depth to lithic contact:* 60 or more inches

*Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Sand content:* 20 to 45 percent

*Rock fragment content:* 0 to 5 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* loam, clay loam

*Clay content:* 15 to 30 percent

*Rock fragment content:* 0 to 2 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Reaction:* neutral or slightly alkaline



*Organic matter content:* 3.0 to 5.0 percent  
*Cation-exchange capacity:* 13.4 to 25.2 meq/100 grams

**Bw horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 3 to 5 dry, 2 or 3 moist  
*Chroma:* 2 or 3  
*Texture:* loam, silt loam, clay loam  
*Clay content:* 20 to 35 percent  
*Rock fragment content:* 0 to 2 percent fine gravel and 0 to 3 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 0 to 2 percent  
*Reaction:* neutral or moderately alkaline  
*Organic matter content:* 1.0 to 3.0 percent  
*Cation-exchange capacity:* 16.6 to 28.7 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 4 or 5 dry, 3 or 4 moist  
*Chroma:* 2 or 3  
*Texture:* loam, clay loam, silt loam; some pedons have stratified layers of sandy loam, fine sandy loam and loam  
*Clay content:* 15 to 30 percent  
*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 7 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 2 to 10 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* neutral or moderately alkaline  
*Organic matter content:* 0.5 to 3.0 percent  
*Cation-exchange capacity:* 12.5 to 24.6 meq/100 grams

## **Mauricanyon Series, Wet**

*Map unit(s):* MaW  
*Local phase(s):* wet  
*Depth class:* very deep  
*Drainage class:* moderately well drained  
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)  
*Landform:* terraces  
*Position on landform:* tread  
*Parent material:* alluvium  
*Elevation:* 5,500 to 6,000 feet (1,676 to 1,829 meters)  
*Slope:* 0 to 2 percent  
*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Aquic Cumulic Haplustolls

### **Typical Pedon**

*Map unit in which located:* Mauricanyon clay loam, 0 to 2 percent slopes, wet  
*Location in survey area:* Mauricanyon clay loam; in an area of Mauricanyon clay loam, 0 to 2 percent slopes, wet; in cropland; about 1,550 feet west and 600 feet south

of the northeast corner of section 5, T. 33 S., R. 63 W.; USGS Trinidad East topographic quadrangle; 37 degrees, 12 minutes, 17.20 seconds north latitude; and 104 degrees, 28 minutes, 19.00 seconds west longitude; UTM 546,859 meters E., 4,117,720 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 6 inches; dark gray (10YR 4/1) clay loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine to medium roots throughout; 1 percent gravel; noneffervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
- Bw1—6 to 12 inches; dark grayish brown (10YR 4/2) clay loam, very dark brown (10YR 2/2) moist; strong fine subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; many very fine to medium roots throughout; 55 percent discontinuous distinct pressure faces on all faces of peds; 1 percent gravel; very slightly effervescent; slightly alkaline (pH 7.4); abrupt wavy boundary.
- Bw2—12 to 23 inches; dark grayish brown (10YR 4/2) clay loam, very dark brown (10YR 2/2) moist; strong medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; many very fine to medium roots throughout; 35 percent continuous distinct pressure faces on faces of peds; very slightly effervescent; slightly alkaline (pH 7.4); abrupt wavy boundary.
- BC—23 to 34 inches; 90 percent brown (10YR 5/3) sandy clay loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common fine roots throughout; 7 percent fine distinct irregular strong brown (7.5YR 4/6), moist, masses of oxidized iron in matrix and 15 percent medium distinct irregular gray (10YR 5/1), moist, iron depletions on faces of peds; very slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Bg1—34 to 44 inches; grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; massive; friable, hard, slightly sticky and slightly plastic; few fine roots throughout; 15 percent medium distinct irregular gray (N 5/), moist, iron depletions on faces of peds; 1 percent gravel; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Bg2—44 to 65 inches; grayish brown (10YR 5/2) silt loam, dark gray (10YR 4/1) moist; massive; friable, hard, slightly sticky and slightly plastic; few fine roots throughout; 50 percent medium distinct irregular gray (N 5/), moist, iron depletions on faces of peds; 1 percent medium distinct irregular carbonate masses around rock fragments; 8 percent gravel; slightly effervescent; slightly alkaline (pH 7.6).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* aquic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through June, moist intermittently from July through September

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 72 degrees F.

*Depth to diagnostic features:* 30 to 48 inches to aquic conditions; 20 to 32 inches to redox depletions with chroma 2 or less; 0 inches to the mollic epipedon

*Thickness of the mollic epipedon:* 20 to 65 inches

##### *Seasonal high water table:*

*Depth to top:* 30 to 48 inches from March through September; 48 to 60 inches from January to February and from October through December

*Particle-size control section (weighted average):**Clay content:* 25 to 35 percent*Sand content:* 15 to 45 percent*Rock fragment content:* 0 to 5 percent**A1 horizon(s):***Hue:* 10YR*Value:* 3 or 4 dry; 2 or 3 moist*Chroma:* 1 to 3*Texture:* clay loam*Clay content:* 27 to 35 percent*Sand content:* 15 to 35 percent*Rock fragment content:* 0 to 1 percent fine gravel, 0 to 1 percent medium and coarse gravel*Reaction:* pH 6.6 to 7.8*Organic matter content:* 3.0 to 5.0 percent*Base saturation:* 90 to 100 percent*Cation-exchange capacity:* 10.0 to 25.0 meq/100 grams**Bw horizon(s):***Hue:* 7.5YR or 10YR*Value:* 3 or 4 dry; 2 or 3 moist*Chroma:* 2 or 3*Texture:* clay loam*Clay content:* 27 to 40 percent*Sand content:* 25 to 45 percent*Rock fragment content:* 0 to 1 percent fine gravel, 0 to 1 percent medium and coarse gravel*Calcium carbonate equivalent:* 0 to 1 percent*Reaction:* pH 6.6 to 7.8*Organic matter content:* 2.0 to 4.0 percent*Cation-exchange capacity:* 10.0 to 25.0 meq/100 grams**BC horizon(s):***Hue:* 7.5YR or 10YR*Value:* 4 or 5 dry; 2 to 4 moist*Chroma:* 2 or 3*Texture:* sandy clay loam, loam*Clay content:* 18 to 27 percent*Sand content:* 35 to 55 percent*Rock fragment content:* 0 to 10 percent fine gravel, 0 to 5 percent medium and coarse gravel*Calcium carbonate equivalent:* 0 to 2 percent*Electrical conductivity:* 0 to 2 mmhos/cm*Sodium adsorption ratio:* 0 to 2*Reaction:* pH 7.4 to 8.4*Organic matter content:* 1.0 to 3.0 percent*Cation-exchange capacity:* 5.0 to 20.0 meq/100 grams**Bg horizon(s):***Hue:* 7.5YR or 10YR*Value:* 4 or 5 dry; 2 to 4 moist*Chroma:* 1 to 3 moist*Texture:* silt loam, loam, clay loam*Clay content:* 18 to 30 percent*Sand content:* 20 to 50 percent

*Rock fragment content:* 0 to 10 percent fine gravel, 0 to 5 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 2 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 2

*Reaction:* pH 7.4 to 8.4

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 5.0 to 20.0 meq/100 grams

## Midway Series

*Map unit(s):* MGR, MP, SM, MyD, MIK, PeF

*Depth class:* very shallow to shallow

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* fan remnants, hills, mesas, pediments, ridges

*Position on landform:* side slope, rise, head slope, riser

*Parent material:* slope alluvium and/or residuum weathered from shale

*Elevation:* 4,500 to 6,500 feet (1,372 to 1,981 meters)

*Slope:* 3 to 40 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)

*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.7 degrees C.)

*Frost-free period:* 120 to 155 days

*Taxonomic class:* Clayey, smectitic, calcareous, mesic, shallow Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Midway clay loam, 3 to 15 percent slopes, gullied

*Location in survey area:* Midway clay loam; in an area of Midway clay loam, 3 to 15 percent slopes, gullied; in rangeland; about 900 feet east and 2,150 feet north of the southwest corner of section 6, T 34 S., R 59 W.; USGS Trinchera topographic quadrangle; 37 degrees, 6 minutes, 32.80 seconds north latitude; and 104 degrees, 3 minutes, 50.10 seconds west longitude; UTM 583,172 meters E., 4,107,386 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 10 percent angular limestone channers

A—0 to 3 inches; grayish brown (10YR 5/2) clay loam, dark gray (10YR 4/1) and very dark grayish brown (10YR 3/2) moist; weak fine granular structure; friable, slightly hard, moderately sticky and moderately plastic; common fine roots; slightly effervescent; moderately alkaline (pH 8.0); clear wavy boundary.

AC—3 to 8 inches; grayish brown (2.5Y 5/2) silty clay, dark grayish brown (10YR 4/2) and olive brown (2.5Y 4/3) and dark grayish brown (2.5Y 4/2) moist; weak medium subangular blocky structure; very firm, very hard, very sticky and very plastic; few fine roots; 20 percent pressure faces; strongly effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

C—8 to 14 inches; grayish brown (2.5Y 5/2) silty clay, very dark grayish brown (2.5Y 3/2) and olive brown (2.5Y 4/3) and olive brown (2.5Y 4/3) moist; weak medium subangular blocky structure; very firm, very hard, very sticky and very plastic; few fine roots; 15 percent pressure faces; violently effervescent; moderately alkaline (pH 8.4); abrupt irregular boundary.

Cr—14 to 60 inches; weathered bedrock; very weakly cemented; calcareous shale bedrock.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 49 to 53 degrees F.

*Mean summer soil temperature:* 68 to 74 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)

*Depth to diagnostic features:* 10 to 20 inches to paralithic contact; 0 inches to the ochric epipedon

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 30 percent, with less than 10 percent fine sand and coarser

*Rock fragment content:* 0 to 20 percent gravel and shale parafragments

*A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 to 6 dry; 3 to 5 moist

*Chroma:* 2 to 4

*Texture:* clay, clay loam, gravelly clay loam

*Clay content:* 30 to 45 percent

*Rock fragment content:* 0 to 20 percent angular indurated gravel and 0 to 5 percent weakly cemented shale paragravel

*Calcium carbonate equivalent:* 0 to 5 percent

*Gypsum content:* 0 to 1 percent

*Electrical conductivity:* 2 to 4 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* pH 7.4 to 8.4

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 15.9 to 35.6 meq/100 grams

*C, Bk, Bw horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* silty clay, clay, silty clay loam, clay loam

*Clay content:* 35 to 50 percent

*Rock fragment content:* 0 to 3 percent fine gravel, 0 to 5 percent weakly cemented shale paragravel, and 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 5 to 15 percent

*Gypsum content:* 1 to 15 percent

*Electrical conductivity:* 2 to 8 mmhos/cm

*Sodium adsorption ratio:* 1 to 15

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 6.0 to 24.7 meq/100 grams

## Minnequa Series

*Map unit(s):* WM, PM

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* pediments, plains

*Position on landform:* rise

*Parent material:* slope alluvium over residuum weathered from limestone and shale

*Elevation:* 4,400 to 6,000 feet (1,341 to 1,829 meters)

*Slope:* 1 to 7 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, calcareous, mesic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Minnequa-Wilid silt loams, 1 to 6 percent slopes

*Location in survey area:* Minnequa silt loam; in an area of Minnequa-Wilid silt loams, 1 to 6 percent slopes; in rangeland; about 900 feet west, 1,500 feet north of southeast corner of section 9, T. 33 S., R. 58 W.; USGS Trementina Canyon topographic quadrangle; 37 degrees, 10 minutes, 50.20 seconds north latitude; and 103 degrees, 54 minutes, 11.40 seconds west longitude; UTM 597,363 meters E., 4,115,473 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; weak medium granular structure; very friable, soft, slightly sticky and slightly plastic; violently effervescent; moderately alkaline (pH 8.1); abrupt smooth boundary.

Bk1—4 to 14 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk2—14 to 24 inches; very pale brown (10YR 7/3) silty clay loam, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; 1 percent fine faint irregular carbonate masses throughout and 2 percent fine faint irregular gypsum masses throughout; 7 percent flat moderately cemented shale parachanners; violently effervescent; moderately alkaline (pH 8.3); abrupt wavy boundary.

Cr1—24 to 29 inches; weathered bedrock; very weakly cemented; soft marl.

Cr2—29 to 60 inches; weathered bedrock; weakly cemented; marl and limestone.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 20 to 40 inches to paralithic contact; 0 inches to the ochric epipedon; 0 to 3 inches to secondary carbonates

*Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 5 to 30 percent, with less than 15 percent fine or coarser sand

*Rock fragment content:* 0 to 5 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist



*Chroma:* 2 or 3  
*Clay content:* 18 to 27 percent  
*Rock fragment content:* 0 to 3 percent fine gravel, 0 to 2 percent medium and coarse gravel, and 0 to 10 percent weakly cemented shale parachanners  
*Calcium carbonate equivalent:* 10 to 25 percent  
*Gypsum content:* 0 to 1 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* moderately alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 14.7 to 22.3 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR to 2.5Y  
*Value:* 6 to 8 dry, 5 or 6 moist  
*Chroma:* 3 or 4  
*Texture:* silty clay loam, silt loam  
*Clay content:* 18 to 35 percent  
*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 2 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 15 to 39 percent  
*Gypsum content:* 0 to 5 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Sodium adsorption ratio:* 0 to 8  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 12.9 to 26.7 meq/100 grams

## Minqwet Series

*Map unit(s):* MI  
*Depth class:* moderately deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)  
*Landform:* hills, plains, ridges  
*Position on landform:* side slope, rise  
*Parent material:* loess and residuum weathered from calcareous shale and limestone  
*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)  
*Slope:* 1 to 4 percent  
*Climatic data:*  
     *Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
     *Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)  
     *Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Aridic Haplustepts

### Typical Pedon

*Map unit in which located:* Minqwet-Wiley silt loams, 1 to 4 percent slopes  
*Location in survey area:* Minqwet silt loam; in an area of Minqwet-Wiley silt loams, 1 to 4 percent slopes; in rangeland; about 400 feet south and 1,900 feet east of the northwest corner of section 3, T. 31 S., R. 52 W.; USGS Buck Canyon topographic quadrangle; 37 degrees, 22 minutes, 48.10 seconds north latitude; and 103 degrees, 14 minutes, 23.00 seconds west longitude; UTM 655,848 meters E., 4,138,484 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)



- A—0 to 6 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) moist; moderate fine and medium granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; strongly effervescent (22 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Bw1—6 to 14 inches; light brownish gray (10YR 6/2) silty clay loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common very fine and fine roots throughout; violently effervescent (28 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.
- Bw2—14 to 21 inches; very pale brown (10YR 7/3) silty clay loam, yellowish brown (10YR 5/4) moist; moderate fine and medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 1 percent fine faint irregular carbonate masses throughout; 5 percent channers; violently effervescent (32 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.
- Bky—21 to 30 inches; very pale brown (10YR 7/3) silty clay loam, yellowish brown (10YR 5/4) moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; common very fine roots throughout; 2 percent fine irregular gypsum crystals throughout and 2 percent medium spherical carbonate masses throughout; violently effervescent (38 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear irregular boundary.
- Cr—30 to 60 inches; weathered bedrock; very weakly cemented; soft weathered shale.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 55 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 4 to 7 inches to the cambic horizon; 20 to 40 inches to paralithic contact; 0 to 2 inches to secondary carbonates; 0 inches to the ochric epipedon

*Thickness of the cambic horizon:* 12 to 21 inches

*Depth to gypsum accumulations:* 20 to 30 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 5 to 35 percent, with less than 15 percent fine and coarser sand

*Rock fragment content:* 0 to 15 percent

#### *A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Clay content:* 20 to 27 percent

*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 2 percent medium and coarse gravel

*Calcium carbonate equivalent:* 15 to 30 percent

*Electrical conductivity:* 1 to 3 mmhos/cm

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 16.2 to 22.3 meq/100 grams

**Bw horizon(s):**

*Hue:* 10YR or 2.5Y  
*Value:* 5 to 7 dry, 4 or 5 moist  
*Chroma:* 2 to 4  
*Texture:* silt loam, silty clay loam  
*Clay content:* 20 to 35 percent  
*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 2 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 15 to 35 percent  
*Gypsum content:* 0 to 1 percent  
*Electrical conductivity:* 1 to 3 mmhos/cm  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

**Bky horizon(s):**

*Hue:* 7.5YR or 2.5Y  
*Value:* 6 to 8 dry, 4 to 6 moist  
*Chroma:* 3 to 6  
*Texture:* silty clay loam, silt loam  
*Clay content:* 20 to 35 percent  
*Rock fragment content:* 0 to 7 percent fine gravel and 0 to 8 percent medium and coarse gravel  
*Pararock fragments:* 1 to 15 percent  
*Calcium carbonate equivalent:* 20 to 40 percent  
*Gypsum content:* 1 to 5 percent  
*Electrical conductivity:* 1 to 5 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* slightly alkaline to strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

## **Mion Series**

*Depth class:* shallow  
*Drainage class:* well drained  
*Permeability:* very slow  
*Landform:* hill, lava plateau  
*Position on landform:* head slope, side slope  
*Parent material:* slope alluvium over residuum weathered from shale  
*Elevation:* 5,300 to 7,000 feet  
*Slope:* 10 to 25 percent  
*Climatic data:*  
*Average annual precipitation:* 14 to 17 inches  
*Average annual temperature:* 48 to 54 degrees F.  
*Frost-free period:* 130 to 150 days

*Taxonomic class:* Clayey, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents

### **Typical Pedon**

*Map unit in which located:* Mion-Rock outcrop complex

*Location in survey area:* Mion silt loam in an area of Mion-Little association, strongly sloping; about 10 miles west of Maxwell, or 2,650 feet north and 400 feet west of the southwest corner of section 33, T. 26 N., R. 21 E.

A1—0 to 4 inches; light brownish gray (10YR 6/2) silt loam, brown (10YR 4/3) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; few fine tubular pores; strongly effervescent; moderately alkaline; clear smooth boundary.

AC—4 to 14 inches; pale brown (10YR 6/3) silty clay, brown (10YR 5/3) moist; weak fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many fine roots; common fine and medium tubular pores; strongly effervescent; moderately alkaline; abrupt smooth boundary.

Cr—14 to 22 inches; light brownish gray (2.5Y 6/2) shale, very weakly cemented; dark grayish brown (2.5Y 4/2) moist; many fine roots between plates in upper inch; thin deposits of lime between plates in upper few inches.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Average annual soil temperature:* 49 to 54 degrees F.

*Average annual summer soil temperature:* 65 to 70 degrees F.

*Depth to paralithic contact:* 10 to 20 inches

*Particle-size control section (weighted average):*

*Clay content:* 35 to 60 percent

*A horizon:*

*Hue:* 10YR or 2.5YR

*Value:* 4 through 6 dry, 3 or 4 moist

*Chroma:* 2 through 4

*Reaction:* slightly alkaline or moderately alkaline

*AC horizon:*

*Hue:* 10YR through 5Y

*Value:* 4 through 6 dry, 3 through 5 moist

*Chroma:* 2 through 4

*Texture:* silty clay, clay loam, clay

*Clay content:* 35 to 60 percent

*Reaction:* slightly alkaline or moderately alkaline

*\*Note:* This series and map unit were taken from the Colfax County manuscript to match Colfax County, New Mexico. The area in which this soil is found consists of less than 40 total acres.

## Mirror Series

*Map unit(s):* MR

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* mountain slopes

*Position on landform:* mountainflank, upper third

*Parent material:* colluvium and residuum weathered from monzonite

*Elevation:* 11,000 to 12,500 feet (3,353 to 3,810 meters)

*Slope:* 40 to 60 percent

*Climatic data:*

*Mean annual precipitation:* 35 to 40 inches (889 to 1,016 millimeters)

*Mean annual air temperature:* 32 to 34 degrees F. (0.0 to 1.0 degrees C.)

*Frost-free period:* 10 to 30 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Humic Dystrocrypts

### Typical Pedon

*Map unit in which located:* Mirror-Rock outcrop complex, 40 to 70 percent slopes

*Location in survey area:* Mirror extremely cobbly loam; in an area of Mirror-Rock outcrop complex, 40 to 70 percent slopes; in rangeland; about 0.5 mile southwest of the USFS boundary and 0.8 mile east of the Costilla County line, T. 32 S., R. 69 W.; USGS El Valle Creek topographic quadrangle; 37 degrees, 14 minutes, 19.10 seconds north latitude; and 105 degrees, 8 minutes, 34.40 seconds west longitude; UTM 487,327 meters E., 4,121,356 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 40 percent gravel, 5 percent cobbles, and 5 percent stones

A—0 to 10 inches; very dark gray (10YR 3/1) extremely cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; very friable, soft, nonsticky and slightly plastic; 20 percent gravel, 20 percent stones, and 25 percent cobbles; noneffervescent; very strongly acid (pH 5.0); clear wavy boundary.

Bw—10 to 25 inches; brown (7.5YR 5/3) extremely cobbly loam, brown (7.5YR 4/3) moist; weak very fine granular structure; very friable, soft, slightly sticky and slightly plastic; 20 percent gravel, 20 percent stones, and 30 percent cobbles; noneffervescent; very strongly acid (pH 4.6); gradual wavy boundary.

R—25 to 60 inches; unweathered bedrock; indurated; hard fractured igneous rock.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist continuously

*Mean annual soil temperature:* 33 to 35 degrees F.

*Mean summer soil temperature:* 38 to 42 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Depth to diagnostic features:* 20 to 40 inches to lithic contact; 7 to 15 inches to the cambic horizon; 0 inches to the umbric epipedon

*Thickness of the umbric epipedon:* 7 to 15 inches

*Particle-size control section (weighted average):*

*Clay content:* 10 to 18 percent

*Sand content:* 40 to 60 percent

*Rock fragment content:* 35 to 70 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 or 2

*Clay content:* 10 to 18 percent

*Rock fragment content:* 0 to 2 percent fine gravel, 0 to 8 percent medium and coarse gravel, 14 to 45 percent cobbles, and 17 to 20 percent stones

*Reaction:* very strongly acid or strongly acid

*Organic matter content:* 3.0 to 7.0 percent

*Base saturation:* 20 to 40 percent

Bw horizon(s):

*Hue:* 5YR to 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 3 or 4

*Texture:* extremely cobbly loam, extremely cobbly sandy loam

*Clay content:* 10 to 18 percent

*Rock fragment content:* 5 to 5 percent fine gravel, 15 to 15 percent medium and coarse gravel, 20 to 35 percent cobbles, and 15 to 20 percent stones

*Reaction:* very strongly acid or strongly acid

*Organic matter content:* 0.5 to 3.0 percent

*Base saturation:* 30 to 60 percent

## Mitotes Series

*Map unit(s):* NM

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* mountain slopes

*Position on landform:* mountainflank

*Parent material:* slope alluvium and colluvium derived from metamorphic and sedimentary rock

*Elevation:* 8,500 to 10,500 feet (2,591 to 3,200 meters)

*Slope:* 10 to 40 percent

*Climatic data:*

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 38 to 40 degrees F. (3.5 to 4.5 degrees C.)

*Frost-free period:* 40 to 70 days

*Taxonomic class:* Fine, mixed, superactive Ustic Glossocryalfs

### Typical Pedon

*Map unit in which located:* Nopurg-Mitotes complex, 10 to 40 percent slopes, stony

*Location in survey area:* Mitotes sandy loam; in an area of Nopurg-Mitotes complex, 10 to 40 percent slopes, stony; in forest land; about 2,200 feet west 550 feet south of northeast corner of section 21, T. 31 S., R. 68 W.; USGS Herlick Canyon topographic quadrangle; 37 degrees, 20 minutes, 18.90 seconds north latitude; and 104 degrees, 0 minutes, 4.60 seconds west longitude; UTM 499,887 meters E., 4,132,434 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 15 percent medium and coarse gravel, and about 1 percent stones

Oi—0 to 1 inch; slightly decomposed plant material; needles, twigs, and moss.

E—1 inch to 15 inches; pinkish gray (5YR 6/2) sandy loam, reddish brown (5YR 4/3) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; 10 percent gravel and 1 percent stones; noneffervescent; strongly acid (pH 5.3); clear wavy boundary.

- E/B—15 to 21 inches; 65 percent pinkish gray (5YR 6/2) cobbly sandy loam, reddish brown (5YR 4/3) moist; and 35 percent light reddish brown (5YR 6/3) cobbly sandy clay loam, reddish brown (5YR 4/4) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 7 percent cobbles and 10 percent gravel; noneffervescent; moderately acid (pH 5.8); clear wavy boundary.
- Bt1—21 to 32 inches; reddish brown (5YR 5/4) cobbly sandy clay, reddish brown (5YR 4/4) moist; moderate medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; 45 percent distinct clay films on all faces of peds; 10 percent gravel and 15 percent cobbles; noneffervescent; moderately acid (pH 5.8); clear smooth boundary.
- Bt2—32 to 51 inches; weak red (2.5YR 5/2) cobbly clay loam, weak red (2.5YR 4/2) moist; strong fine and medium subangular blocky structure; very firm, slightly hard, moderately sticky and moderately plastic; 55 percent distinct clay films on all faces of peds; 5 percent gravel, 10 percent stones, and 15 percent cobbles; noneffervescent; moderately acid (pH 5.8); clear smooth boundary.
- 2C—51 to 72 inches; weak red (2.5YR 5/2) stony sandy loam, weak red (2.5YR 4/2) moist; massive; very friable, soft, nonsticky and nonplastic; 5 percent gravel, 5 percent cobbles, and 15 percent stones; noneffervescent; moderately acid (pH 5.8).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist continuously with peak periods from April through August

*Mean annual soil temperature:* 39 to 42 degrees F.

*Mean summer soil temperature:* 45 to 48 degrees F.

*Depth to diagnostic features:* 0 to 2 inches to the albic horizon; 10 to 17 inches to the glossic horizon; 15 to 23 inches to the argillic horizon; 40 to 57 inches to lithologic discontinuity

*Thickness of the albic horizon:* 10 to 15 inches

*Thickness of the glossic horizon:* 5 to 8 inches

*Depth to the base of the argillic horizon:* 40 to 57 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 35 to 55 percent

*Rock fragment content:* 15 to 35 percent gravel and cobbles

#### *E horizon(s):*

*Hue:* 2.5YR to 7.5YR

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 2 or 3

*Clay content:* 10 to 20 percent

*Rock fragments:* 5 to 15 percent total: 1 to 2 percent fine gravel, 5 to 9 percent medium and coarse gravel, 0 to 2 percent cobbles, and 0 to 2 percent stones

*Reaction:* strongly acid to slightly acid

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 16.6 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 2.5YR or 5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 6

*Texture:* cobbly clay, cobbly clay loam, cobbly sandy clay



*Clay content:* 35 to 50 percent

*Rock fragments:* 15 to 35 percent total: 0 to 5 percent fine gravel, 5 to 10 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* moderately acid or slightly acid

*Organic matter content:* 0.0 to 0.5 percent

*Base saturation:* 60 to 100 percent

*Cation-exchange capacity:* 23.4 to 36.9 meq/100 grams

2C horizon(s):

*Hue:* 10R to 5YR

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 3 to 6

*Texture:* stony sandy loam, cobbly sandy loam

*Clay content:* 8 to 20 percent

*Rock fragment content:* 15 to 35 percent total: 0 to 5 percent fine gravel, 2 to 8 percent medium and coarse gravel, 3 to 7 percent cobbles, and 10 to 15 percent stones

*Reaction:* moderately acid or slightly acid (pH 5.6 to 6.5)

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 6.2 to 16.2 meq/100 grams

## Molinaro Series

*Map unit(s):* Sw

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fan remnants, terraces, valley floors

*Position on landform:* rise, tread

*Parent material:* alluvium derived from sandstone and shale

*Elevation:* 6,800 to 8,000 feet (2,073 to 2,438 meters)

*Slope:* 2 to 12 percent

*Climatic data:*

*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)

*Mean annual air temperature:* 45 to 47 degrees F. (7.0 to 8.4 degrees C.)

*Frost-free period:* 70 to 100 days

*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Pachic Haplustolls

### Typical Pedon

*Map unit in which located:* Molinaro loam, 2 to 12 percent slopes

*Location in survey area:* Molinaro loam; in an area of Molinaro loam, 2 to 12 percent slopes; in rangeland; about 100 feet east and 2,200 feet north of the southwest corner of section 23, T. 33 S., R. 67 W.; USGS Weston topographic quadrangle; 37 degrees, 9 minutes, 21.00 seconds north latitude; and 104 degrees, 51 minutes, 56.50 seconds west longitude; UTM 511,926 meters E., 4,112,174 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A1—0 to 17 inches; dark grayish brown (10YR 4/2) loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; friable, soft, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.2); clear smooth boundary.

A2—17 to 31 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; friable, soft, slightly



sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bw—31 to 41 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; firm, hard, slightly sticky and slightly plastic; common very fine roots throughout; very slightly effervescent; slightly alkaline (pH 7.6); gradual smooth boundary.

Bk—41 to 66 inches; grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; massive; firm, hard, slightly sticky and slightly plastic; few very fine roots throughout; 1 percent fine threadlike carbonate masses throughout; strongly effervescent; moderately alkaline (pH 8.0).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some part from April through August

*Mean annual soil temperature:* 45 to 48 degrees F.

*Mean summer soil temperature:* 59 to 61 degrees F.

*Depth to diagnostic features:* 0 inches to the mollic epipedon; 30 to 56 inches to secondary carbonates

*Thickness of the mollic epipedon:* 40 to 66 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Sand content:* 30 to 50 percent

*Rock fragment content:* 0 to 5 percent, dominantly gravel

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 18 to 27 percent

*Rock fragment content:* 0 to 8 percent fine gravel and 0 to 7 percent medium and coarse gravel

*Reaction:* slightly acid to slightly alkaline

*Organic matter content:* 3.0 to 5.0 percent

*Cation-exchange capacity:* 15.8 to 23.2 meq/100 grams

#### *Bw horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* loam, clay loam

*Clay content:* 20 to 30 percent

*Rock fragment content:* 0 to 8 percent fine gravel and 0 to 7 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 2 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 16.6 to 25.0 meq/100 grams

#### *Bk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Texture:* loam, clay loam

*Clay content:* 18 to 30 percent  
*Rock fragment content:* 0 to 8 percent fine gravel and 0 to 7 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 14.7 to 24.6 meq/100 grams

## Moran Family

*Map unit(s):* Mf  
*Depth class:* very deep  
*Drainage class:* somewhat excessively drained  
*Permeability:* moderately rapid  
*Landform:* mountain, mountains  
*Position on landform:* mountaintop  
*Parent material:* colluvium over till derived from monzonite  
*Elevation:* 11,000 to 12,500 feet  
*Slope:* 5 to 40 percent  
*Climatic data:*  
*Average annual precipitation:* 30 to 40 inches  
*Average annual temperature:* 34 to 37 degrees F.  
*Frost-free period:* 10 to 45 days  
*Taxonomic class:* Loamy-skeletal, mixed, superactive Humic Dystrocrypts

### Typical Pedon

*Map unit in which located:* Moran Family very cobbly fine sandy loam, in an area of Moran Family, 5 to 40 percent slopes.  
*Location in survey area:* SE quarter of the SE quarter of section 36, T. 31 S., R. 70 W. Huerfano County, Colorado. Location provided by USFS.

The soil surface is covered by discontinuous forb and grass litter.

- A1—0 to 6 inches; dark grayish brown (10YR 4/2) very cobbly fine sandy loam, very dark brown (10YR 2/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and very fine, few medium roots; many fine interstitial pores; 25 percent gravel and 15 percent cobbles; strongly acid (pH 5.3); clear smooth boundary.
- A2—6 to 17 inches; dark grayish brown (10YR 4/2) very gravelly fine sandy loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, common fine, few medium roots; common fine and medium interstitial pores; 25 percent gravel and 10 percent cobbles; strongly acid (pH 5.4); clear wavy boundary.
- Bw1—17 to 30 inches; light brown (7.5YR 6/4) very cobbly sandy loam, dark brown (7.5 YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, common fine, few medium roots; common fine interstitial, few fine tubular pores; 25 percent gravel, 20 percent cobbles, and 5 percent stones; strongly acid (pH 5.2); clear smooth boundary.
- Bw2—30 to 40 inches; light brown (7.5YR 6/4) very cobbly sandy loam, dark brown (7.5YR 4/4) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many fine and medium interstitial pores; few faint clay films as lamellae; 30 percent gravel,

25 percent cobbles, and 5 percent stones; strongly acid (pH 5.4); clear smooth boundary.

- C1—40 to 47 inches; light reddish brown (5YR 6/3) extremely cobbly sandy loam, reddish brown (5YR 4/3) moist; massive; loose, nonsticky and nonplastic; common very fine, few fine roots; many fine, medium, and coarse interstitial pores; 50 percent gravel, 25 percent cobbles, and 5 percent stones; strongly acid (pH 5.4); gradual wavy boundary.
- C2—47 to 60 inches; light reddish brown (5YR 6/3) extremely cobbly coarse sandy loam, reddish brown (5YR 4/3) moist; massive; loose, nonsticky and nonplastic; few fine and very fine roots; many fine, medium and coarse interstitial pores; 30 percent gravel, 30 percent cobbles, and 10 percent stones; moderately acid (pH 5.6).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* udic

*Soil moisture:* moist continuously, with peak periods April through August; Udic moisture regime

*Average annual soil temperature:* 35 to 38 degrees F.

*Average summer soil temperature:* 38 to 42 degrees F.

*Depth to diagnostic features:* 0 inches to the umbric epipedon

*Thickness of the umbric epipedon:* 10 to 20 inches

*Thickness of the cambic horizon:* 15 to 30 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 8 to 18 percent

*Sand content:* 55 to 75 percent

*Rock fragment content:* 35 to 80 percent

#### *A horizons:*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 12 to 18 percent

*Rock fragment content:* 35 to 60 percent, dominantly gravel and cobbles

*Base saturation:* 15 to 50 percent

*Reaction:* strongly acid or moderately acid

#### *Bw horizons:*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Clay content:* 8 to 18 percent

*Rock fragment content:* 35 to 60 percent, dominantly cobbles

*Base saturation:* 40 to 60 percent

*Reaction:* strongly acid to slightly acid

*\*Note:* The Moran soils in this survey area are at the family level because this unit was taken from the Wet Mountains and Spanish Peaks soil survey area.

## Nopurg Series

*Map unit(s):* NM

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* mountain slopes

*Position on landform:* mountainflank

*Parent material:* alluvium and colluvium derived from metamorphic and sedimentary rock

*Elevation:* 8,500 to 10,500 feet (2,591 to 3,200 meters)

*Slope:* 20 to 40 percent

*Climatic data:*

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 38 to 40 degrees F. (3.5 to 4.5 degrees C.)

*Frost-free period:* 40 to 70 days

*Taxonomic class:* Clayey-skeletal, mixed, superactive Ustic Glossocryalfs

### Typical Pedon

*Map unit in which located:* Nopurg-Mitotes complex, 10 to 40 percent slopes, stony

*Location in survey area:* Nopurg cobbly sandy loam; in an area of Nopurg-Mitotes complex, 10 to 40 percent slopes, stony; in forest land; about 2,500 feet west and 2,400 feet south of the northeast corner of section 21, T. 31 S., R. 68 W.; USGS Herlick Canyon topographic quadrangle; 37 degrees, 20 minutes, 0.80 seconds north latitude; and 105 degrees, 0 minutes, 4.90 seconds west longitude; UTM 499,880 meters E., 4,131,877 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* 10 percent cobbles and 5 percent stones

Oi—0 to 1 inch; slightly decomposed plant material; dominantly needles and twigs.

E—1 inch to 12 inches; pinkish gray (5YR 6/2), cobbly sandy loam, dark reddish gray (5YR 4/2), moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; 5 percent stones, 10 percent cobbles, and 10 percent gravel; noneffervescent; moderately acid (pH 5.8); clear smooth boundary.

B/E—12 to 24 inches; 60 percent reddish brown (5YR 5/3), very cobbly sandy clay loam, and 40 percent pinkish gray (5YR 6/2) very cobbly sandy loam, reddish brown (5YR 4/3), moist and crushed; weak fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 2 percent stones, 15 percent gravel, and 25 percent cobbles; noneffervescent; moderately acid (pH 5.9); clear smooth boundary.

Bt1—24 to 35 inches; reddish brown (2.5YR 5/3), very cobbly sandy clay, reddish brown (2.5YR 4/4), moist; moderate medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; 40 percent distinct clay films on all faces of peds; 2 percent stones, 15 percent gravel, and 35 percent cobbles; noneffervescent; moderately acid (pH 5.7); clear smooth boundary.

Bt2—35 to 72 inches; weak red (10R 5/3), very cobbly clay, weak red (10R 4/3), moist; moderate medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; 50 percent distinct clay films on all faces of peds; 5 percent stones, 10 percent gravel, and 40 percent cobbles; noneffervescent; moderately acid (pH 5.6).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist from March through September

*Mean annual soil temperature:* 39 to 42 degrees F.

*Mean summer soil temperature:* 44 to 48 degrees F.

*Depth to diagnostic features:* 0 to 1 inches to the albic horizon; 6 to 13 inches to the glossic horizon; 12 to 24 inches to the argillic horizon

*Thickness of the albic horizon:* 6 to 12 inches

*Thickness of the glossic horizon:* 6 to 12 inches

*Depth to the base of the argillic horizon:* 60 to 72 inches

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 35 to 55 percent

*Rock fragment content:* 35 to 60 percent

E horizon(s):

*Hue:* 5YR to 10YR

*Value:* 6 to 8 dry, 4 to 7 moist

*Chroma:* 2 or 3

*Clay content:* 10 to 20 percent

*Rock fragment content:* 35 to 60 percent total: 2 to 5 percent fine gravel, 5 to 10 percent medium and coarse gravel, 7 to 15 percent cobbles, and 1 to 5 percent stones

*Reaction:* strongly acid or moderately acid (pH 5.1 to 6.0)

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 16.6 meq/100 grams

B/E horizon(s):

*Hue:* 2.5YR to 10YR

*Value:* 6 to 8 dry, 4 to 7 moist (E);

5 or 6 dry, 4 or 5 moist (B)

*Chroma:* 2 or 3 (E); 2 to 4 (B)

*Clay content:* 20 to 35 percent

*Rock fragment content:* 35 to 60 percent total: 5 to 10 percent fine gravel, 10 to 15 percent medium and coarse gravel, 20 to 30 percent cobbles, and 0 to 5 percent stones

*Reaction:* pH 5.6 to 6.5

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

Bt horizon(s):

*Hue:* 10R to 5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* very cobbly clay, very cobbly sandy clay

*Clay content:* 35 to 50 percent

*Rock fragment content:* 35 to 60 percent total: 5 to 5 percent fine gravel, 10 to 15 percent medium and coarse gravel, 20 to 35 percent cobbles, and 0 to 5 percent stones

*Reaction:* moderately acid to slightly acid

*Organic matter content:* 0.0 to 0.5 percent

*Base Saturation:* 60 to 100 percent

*Cation-exchange capacity:* 23.4 to 36.9 meq/100 grams

## **Olneest Series**

*Map unit(s):* FtC, OyB, OyC

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* hills, plains, ridges

*Position on landform:* interfluve, base slope, talus, side slope, rise

*Parent material:* eolian deposits and alluvium

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 0 to 7 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs

### Typical Pedon

*Map unit in which located:* Olnest sandy loam, 3 to 7 percent slopes

*Location in survey area:* Olnest sandy loam; in an area of Olnest sandy loam, 3 to 7 percent slopes; in rangeland; about 2,400 feet east and 1,900 feet south of the northwest corner of section 20, T. 32 S., R. 52 W.; USGS Kim South topographic quadrangle; 37 degrees, 14 minutes, 41.00 seconds north latitude; and 103 degrees, 16 minutes, 32.60 seconds west longitude; UTM 652,934 meters E., 4,123,405 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 4 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; very friable, soft, nonsticky and nonplastic; many very fine and fine roots; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- Bt1—4 to 14 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) crushed, moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common very fine and fine roots; 35 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.6); gradual smooth boundary.
- Bt2—14 to 20 inches; yellowish brown (10YR 5/4) sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; friable, very hard, slightly sticky and slightly plastic; common very fine and fine roots; 25 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
- Bk1—20 to 28 inches; light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; very friable, hard, slightly sticky and nonplastic; few very fine and fine roots; 1 percent fine distinct irregular carbonate masses; violently effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.
- Bk2—28 to 48 inches; light yellowish brown (10YR 6/4) sandy loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; very friable, hard, slightly sticky and slightly plastic; few very fine roots; 15 percent medium distinct irregular carbonate masses; violently effervescent; moderately alkaline (pH 8.4); gradual irregular boundary.
- Bk3—48 to 60 inches; light yellowish brown (10YR 6/4) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; friable, hard, slightly sticky and slightly plastic; 15 percent medium distinct irregular carbonate masses; violently effervescent; strongly alkaline (pH 8.6).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)



*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 3 to 6 inches to the argillic horizon; 0 inches to the ochric epipedon; 15 to 23 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 20 to 25 inches

*Particle-size control section (weighted average):*

*Clay content:* 20 to 32 percent

*Sand content:* 50 to 65 percent

*Rock fragment content:* 0 to 10 percent

**A horizon(s):**

*Hue:* 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* loam, sandy loam

*Clay content:* 12 to 17 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 10.5 to 14.7 meq/100 grams

**Bt horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Clay content:* 20 to 32 percent

*Sand content:* 50 to 75 percent, with more than 35 percent fine sand and coarser

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 16.2 to 25.3 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 3 or 4

*Texture:* sandy loam, fine sandy loam, very fine sandy loam, loam, sandy clay loam

*Clay content:* 10 to 30 percent

*Calcium carbonate equivalent:* 4 to 15 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline to strongly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 7.6 to 23.9 meq/100 grams

## Otero Series

*Map unit(s):* OeC

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* hills, plains, ridges

*Position on landform:* head slope, side slope, rise

*Parent material:* eolian deposits

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)



*Slope:* 1 to 6 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, calcareous, mesic Aridic Ustorthents

### Typical Pedon

*Map unit in which located:* Otero sandy loam, 1 to 6 percent slopes

*Location in survey area:* Otero sandy loam; in an area of Otero sandy loam, 1 to 6 percent slopes; in rangeland; about 2,500 feet south and 1,100 feet east of the northwest corner of section 2, T. 33 S., R. 52 W.; USGS Pintada Creek topographic quadrangle; 37 degrees, 11 minutes, 59.70 seconds north latitude; and 103 degrees, 13 minutes, 20.20 seconds west longitude; UTM 657,767 meters E., 4,118,531 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 3 inches; brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; common very fine and fine roots throughout; noneffervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.
- AC—3 to 10 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; very friable, soft, nonsticky and nonplastic; common very fine and fine roots throughout; slightly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
- C1—10 to 19 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; very friable, soft, nonsticky and nonplastic; common very fine roots throughout; violently effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.
- Bk—19 to 30 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; few very fine roots throughout; 1 percent medium irregular carbonate masses; violently effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
- C2—30 to 40 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 5/3) moist; massive; very friable, slightly hard, nonsticky and nonplastic; few very fine roots; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- C3—40 to 65 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; very friable, slightly hard, nonsticky and nonplastic; violently effervescent; moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 0 to 10 inches to secondary carbonates; 0 inches to the ochric epipedon

*Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 55 to 75 percent  
*Rock fragment content:* 0 to 15 percent

A horizon(s):

*Hue:* 7.5YR or 10YR  
*Value:* 4 or 5 dry, 3 or 4 moist  
*Chroma:* 2 to 3  
*Clay content:* 10 to 20 percent  
*Rock fragment content:* 0 to 9 percent fine gravel and 0 to 6 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 0 to 4 percent  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 8.6 to 17.0 meq/100 grams

AC horizon(s):

*Hue:* 7.5YR or 10YR  
*Value:* 4 to 6 dry, 3 to 5 moist  
*Chroma:* 3 or 4  
*Clay content:* 10 to 20 percent  
*Rock fragment content:* 0 to 9 percent fine gravel and 0 to 6 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 0 to 4 percent  
*Reaction:* slightly alkaline or moderately alkaline (pH 7.4 to 8.4)  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 8.6 to 17.0 meq/100 grams

C or Bk horizon(s):

*Hue:* 7.5YR or 10YR  
*Value:* 6 or 7 dry, 4 to 6 moist  
*Chroma:* 3 or 4  
*Texture:* fine sandy loam, sandy loam  
*Clay content:* 5 to 18 percent  
*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 1 to 4 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* pH 7.4 to 8.4  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 4.1 to 14.7 meq/100 grams

## Oterodry Series

*Map unit(s):* KO, OtD  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)  
*Landform:* hills, ridges  
*Position on landform:* side slope, head slope  
*Parent material:* eolian deposits  
*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)  
*Slope:* 1 to 9 percent  
*Climatic data:*  
*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, calcareous, mesic Ustic  
Torriorthents

### Typical Pedon

*Map unit in which located:* Kimera-Oterodry complex, 2 to 7 percent slopes

*Location in survey area:* Oterodry fine sandy loam; in an area of Kimera-Oterodry complex, 2 to 7 percent slopes; in rangeland; about 250 feet south and 2,600 feet east of the northwest corner of section 2, T. 28 S., R. 64 W.; USGS Cucharas Reservoir topographic quadrangle; 37 degrees, 38 minutes, 38.70 seconds north latitude; and 104 degrees, 31 minutes, 19.00 seconds west longitude; UTM 542,172 meters E., 4,166,435 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 11 inches; light brownish gray (10YR 6/2) fine sandy loam, brown (10YR 4/3) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; many very fine and fine roots; strongly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.
- AC—11 to 25 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; common very fine and fine roots; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- C—25 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; massive; very friable, slightly hard, nonsticky and nonplastic; few very fine roots; 1 percent fine carbonate masses; violently effervescent; moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 0 to 10 inches secondary carbonates; 0 inches to the ochric epipedon

*Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 55 to 80 percent

*Rock fragment content:* 0 to 15 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 5 to 18 percent

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 4.6 to 15.5 meq/100 grams

*AC horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 2 or 3  
*Texture:* fine sandy loam, sandy loam  
*Clay content:* 5 to 18 percent  
*Rock fragment content:* 0 to 6 percent fine gravel  
*Calcium carbonate equivalent:* 1 to 10 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 4.1 to 15.1 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 5 to 7 dry, 4 or 5 moist  
*Chroma:* 2 to 4  
*Texture:* fine sandy loam, sandy loam  
*Clay content:* 5 to 18 percent  
*Rock fragment content:* 0 to 6 percent fine gravel  
*Calcium carbonate equivalent:* 1 to 10 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* moderately alkaline  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 4.1 to 15.1 meq/100 grams

## Ovmesa Series

*Map unit(s):* SG

*Depth class:* very shallow to shallow

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* hills, pediments, structural benches

*Position on landform:* side slope, head slope, rise, crest

*Parent material:* slope alluvium over residuum weathered from gypsum and shale

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Slope:* 9 to 30 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 135 to 155 days

*Taxonomic class:* Loamy, gypsic, mesic, shallow Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Ovmesa-Romound complex, 2 to 30 percent slopes

*Location in survey area:* Ovmesa loam; in an area of Ovmesa-Romound complex, 2 to 30 percent slopes; in rangeland; about 2,500 feet west and 1,100 feet north of the southeast corner of section 20, T. 28 S., R. 56 W.; USGS O V Mesa topographic quadrangle; 37 degrees, 35 minutes, 22.60 seconds north latitude; and 103 degrees, 42 minutes, 31.00 seconds west longitude; UTM 614,011 meters E., 4,161,067 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 2 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 4/4) moist; weak fine and medium subangular blocky structure; very friable, soft, nonsticky and

nonplastic; strongly effervescent; moderately alkaline (pH 7.9); abrupt smooth boundary.

Bky—2 to 9 inches; pink (7.5YR 7/4) fine sandy loam, light brown (7.5YR 6/4) moist; massive; friable, slightly hard, nonsticky and nonplastic; 10 percent fine distinct irregular gypsum crystals and carbonate masses throughout; strongly effervescent; slightly alkaline (pH 7.6); abrupt irregular boundary.

Cr1—9 to 14 inches; weathered bedrock; moderately cemented; soft to moderately hard gypsum and shale.

Cr2—14 to 60 inches; weathered bedrock; very weakly cemented; soft reddish gypsum and siltstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to restrictive feature:* 8 to 20 inches to bedrock (paralithic)

*Depth to diagnostic features:* 8 to 20 inches to paralithic contact; 0 to 2 inches to secondary carbonates; 0 inches to the ochric epipedon

*Depth to gypsiferous material:* typically at the surface

*Percentage of gypsum plus calcium:* 40 to 60 percent

#### *Particle-size control section (weighted average):*

*Clay content:* 10 to 18 percent

*Sand content:* 30 to 65 percent

*Rock fragment content:* 0 to 15 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Clay content:* 10 to 20 percent

*Rock fragment content:* 0 to 3 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 5 to 15 percent

*Gypsum content:* 25 to 40 percent

*Electrical conductivity:* 8 to 16 mmhos/cm

*Sodium adsorption ratio:* 1 to 10

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 7.8 to 15.0 meq/100 grams

#### *Bky horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 6 to 8 dry, 5 to 7 moist

*Chroma:* 3 to 6

*Texture:* fine sandy loam, loam

*Clay content:* 10 to 18 percent

*Rock fragment content:* 0 to 15 percent total: 0 to 11 percent fine gravel and 0 to 9 percent medium and coarse gravel

*Parafragment content:* 0 to 15 percent soft gypsum

*Calcium carbonate equivalent:* 1 to 10 percent

*Gypsum content:* 35 to 55 percent  
*Electrical conductivity:* 8 to 16 mmhos/cm  
*Sodium adsorption ratio:* 1 to 10  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 5.7 to 12.3 meq/100 grams

## Penrose Series

*Map unit(s):* PM, PeD, PnD, ShD, PeF  
*Local phase(s):* moist  
*Depth class:* shallow  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* cuestras, mesas, scarps  
*Position on landform:* crest  
*Parent material:* slope alluvium and residuum weathered from limestone  
*Elevation:* 4,500 to 6,500 feet (1,372 to 1,981 meters)  
*Slope:* 1 to 25 percent  
*Climatic data:*  
     *Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)  
     *Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 12.0 degrees C.)  
     *Frost-free period:* 125 to 155 days

*Taxonomic class:* Loamy, carbonatic, mesic Lithic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Penrose loam, 1 to 9 percent slopes  
*Location in survey area:* Penrose loam; in an area of Penrose loam, 1 to 9 percent slopes; about 1,900 feet east and 1,150 feet north of the southwest corner of section 31, T. 31 S., R. 59 W.; USGS Trinchera topographic quadrangle; 37 degrees, 7 minutes, 18.00 seconds north latitude; and 104 degrees, 3 minutes, 39.50 seconds west longitude; UTM 583,420 meters E., 4,108,783 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* about 5 percent limestone gravel-sized channers  
 A—0 to 5 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) and dark grayish brown (10YR 4/2) moist; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; few fine roots throughout; violently effervescent (50 percent calcium carbonate); moderately alkaline (pH 8.2); clear smooth boundary.  
 AC—5 to 9 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) and brown (10YR 5/3) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few fine roots throughout; 5 percent limestone channers; violently effervescent (60 percent calcium carbonate); strongly alkaline (pH 8.6); abrupt wavy boundary.  
 C—9 to 15 inches; very pale brown (10YR 8/3) channery loam, brown (10YR 5/3) and grayish brown (10YR 5/2) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; 15 percent limestone channers; violently effervescent (60 percent calcium carbonate); moderately alkaline (pH 8.4); abrupt irregular boundary.  
 R—15 to 60 inches; unweathered bedrock; indurated; hard fractured limestone.



### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to restrictive feature:* 6 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 6 to 20 inches to lithic contact; 0 inches to the ochric epipedon

*Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 20 to 55 percent

*Rock fragment content:* 0 to 35 percent

*A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 15 to 27 percent

*Rock fragment content:* 0 to 10 percent fine gravel-sized channers and  
0 to 5 percent medium and coarse gravel-sized channers

*Calcium carbonate equivalent:* 25 to 75 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 9.5 to 18.4 meq/100 grams

*C horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 6 or 7 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* channery clay loam, channery loam, channery silt loam

*Clay content:* 18 to 30 percent

*Rock fragment content:* 6 to 18 percent fine gravel-sized channers and  
9 to 17 percent medium and coarse gravel-sized channers

*Calcium carbonate equivalent:* 40 to 75 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Sodium adsorption ratio:* 0 to 10

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 4.7 to 20.1 meq/100 grams

## Plughat Series

*Map unit(s):* WC

*Depth class:* deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* interfluvies, plains



*Position on landform:* rise

*Parent material:* loess and residuum derived from sedimentary materials

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 1 to 4 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.5 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Calcic Haplustalfs

### Typical Pedon

*Map unit in which located:* Plughat-Villegreen complex, 1 to 4 percent slopes

*Location in survey area:* Plughat silt loam; in an area of Plughat-Villegreen complex, 1 to 4 percent slopes; in rangeland; about 1,750 feet south and 550 feet west of the northeast corner of section 5, T. 33 S., R. 57 W.; USGS Box Ranch topographic quadrangle; 37 degrees, 10 minutes, 17.90 seconds north latitude; and 103 degrees, 46 minutes, 39.80 seconds west longitude; UTM 608,510 meters E., 4,114,611 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 3 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many fine roots; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—3 to 6 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate very fine and fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; 25 percent distinct clay films on faces of peds; very slightly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bt2—6 to 13 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate fine and medium prismatic structure parting to moderate medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; common very fine roots; 45 percent distinct clay films on faces of peds; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—13 to 27 inches; light yellowish brown (10YR 6/4) silty clay loam, yellowish brown (10YR 5/4) moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; common very fine roots; 50 percent distinct clay films on faces of peds; 15 percent medium distinct irregular carbonate masses throughout; violently effervescent (8.0 percent calcium carbonate equivalent); moderately alkaline (pH 8.3); abrupt smooth boundary.

Bk1—27 to 34 inches; very pale brown (10YR 7/4) silt loam, light yellowish brown (10YR 6/4) moist; weak fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few very fine roots; 4 percent fine distinct irregular carbonate masses throughout; violently effervescent (35.0 percent calcium carbonate equivalent); moderately alkaline (pH 8.3); abrupt smooth boundary.

Bk2—34 to 48 inches; very pale brown (10YR 7/4) loam, light yellowish brown (10YR 6/4) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; carbonate, finely disseminated throughout; 14 percent gravel; violently effervescent (18.0 percent calcium carbonate equivalent); moderately alkaline (pH 8.3); abrupt irregular boundary.

R—48 inches; unweathered bedrock; indurated; hard Dakota sandstone.

**Range in Characteristics***Soil moisture:**Soil moisture regime subclass:* aridic (torric)*Soil moisture regime class:* ustic*Seasonal pattern:* moist intermittently from April through August*Mean annual soil temperature:* 51 to 54 degrees F.*Mean summer soil temperature:* 68 to 72 degrees F.*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)*Depth to diagnostic features:* 21 to 31 inches to the calcic horizon; 40 to 60 inches to lithic contact; 2 to 5 inches to the argillic horizon; 0 inches to the ochric epipedon; 2 to 10 inches to secondary carbonates*Thickness of the argillic horizon:* 23 to 36 inches*Particle-size control section (weighted average):**Clay content:* 27 to 35 percent*Sand content:* 0 to 15 percent fine sand or coarser*Rock fragment content:* 0 to 5 percent*A horizon(s):**Hue:* 7.5YR or 10YR*Value:* 4 or 5 dry, 3 or 4 moist*Chroma:* 2 or 3*Clay content:* 18 to 27 percent*Calcium carbonate equivalent:* 0 to 2 percent*Reaction:* neutral or slightly alkaline*Organic matter content:* 1.0 to 2.0 percent*Cation-exchange capacity:* 15.1 to 22.3 meq/100 grams*Bt1 horizon(s):**Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 or 4*Texture:* silty clay loam, clay loam*Clay content:* 27 to 35 percent*Sand content:* 0 to 20 percent, with less than 15 percent fine sand and coarser*Calcium carbonate equivalent:* 0 to 5 percent*Reaction:* slightly alkaline or moderately alkaline*Organic matter content:* 0.5 to 1.0 percent*Cation-exchange capacity:* 21.2 to 27.5 meq/100 grams*Bt2 horizon(s):**Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 or 4*Texture:* silty clay loam, clay loam*Clay content:* 27 to 35 percent*Sand content:* 0 to 20 percent, with less than 15 percent fine sand and coarser*Calcium carbonate equivalent:* 2 to 10 percent*Reaction:* slightly alkaline or moderately alkaline*Organic matter content:* 0.5 to 1.0 percent*Cation-exchange capacity:* 21.2 to 27.5 meq/100 grams*Btk horizon(s):**Hue:* 7.5YR or 10YR*Value:* 6 or 7 dry, 4 to 6 moist

*Chroma:* 3 to 6

*Texture:* silty clay loam, clay loam

*Clay content:* 27 to 35 percent

*Sand content:* 0 to 20 percent, with less than 15 percent fine sand and coarser

*Rock fragment content:* 0 to 5 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 21.2 to 27.5 meq/100 grams

Bk horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 to 8 dry, 5 to 7 moist

*Chroma:* 3 to 6

*Texture:* loam, silt loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Calcium carbonate equivalent:* 15 to 40 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 12.9 to 21.2 meq/100 grams

## Raku Series

*Map unit(s):* Rc, RcA

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* depressions, drainageways, plains, terraces

*Position on landform:* talf, dip, tread

*Parent material:* alluvium and loess

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Slope:* 0 to 2 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Aridic Argiustolls

### Typical Pedon

*Map unit in which located:* Raku silt loam, 0 to 2 percent slopes

*Location in survey area:* Raku silt loam; in an area of Raku silt loam, 0 to 2 percent slopes; in rangeland; about 1,320 feet east and 2,120 feet south of the northwest corner of section 15, T. 32 S., R. 53 W.; USGS Kim North topographic quadrangle; 37 degrees, 15 minutes, 31.60 seconds north latitude; and 103 degrees, 21 minutes, 2.00 seconds west longitude: UTM 646,267 meters E., 4,124,855 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 8 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; very friable, slightly hard,

slightly sticky and slightly plastic; noneffervescent; neutral (pH 7.3); abrupt smooth boundary.

Bt1—8 to 11 inches; brown (10YR 5/3) silty clay loam, very dark grayish brown (10YR 3/2) and dark brown (10YR 3/3) crushed, moist; moderate very fine subangular blocky structure; friable, very hard, moderately sticky and moderately plastic; 30 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 7.3); abrupt smooth boundary.

Bt2—11 to 22 inches; brown (10YR 5/3) silty clay, dark brown (10YR 3/3) and brown (10YR 4/3) crushed, moist; moderate medium prismatic structure parting to strong medium angular blocks; firm, extremely hard, very sticky and very plastic; 45 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt3—22 to 28 inches; brown (10YR 5/3) silty clay, dark brown (10YR 3/3) and brown (10YR 4/3) crushed, moist; moderate fine angular blocky structure; firm, very hard, moderately sticky and moderately plastic; 40 percent distinct clay films on all faces of peds; violently effervescent (2 percent calcium carbonate); moderately alkaline (pH 8.2); clear smooth boundary.

Btk—28 to 45 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) and brown (10YR 5/3) crushed, moist; weak coarse subangular blocky structure; friable, slightly hard, moderately sticky and moderately plastic; 25 percent distinct clay films on all faces of peds; 8 percent fine distinct irregular carbonate masses throughout (4 percent calcium carbonate); violently effervescent; moderately alkaline (pH 8.4); gradual smooth boundary.

Bk—45 to 68 inches; very pale brown (10YR 7/3) clay loam, brownish yellow (10YR 6/6) and light yellowish brown (10YR 6/4) crushed, moist; weak coarse subangular blocky structure; friable, slightly hard, moderately sticky and moderately plastic; carbonate, finely disseminated throughout; violently effervescent (17 percent calcium carbonate); moderately alkaline (pH 8.4).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through June and intermittently moist in July and August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to diagnostic features:* 40 to 58 inches to the calcic horizon; 3 to 10 inches to the argillic horizon; 0 inches to the mollic epipedon; 12 to 22 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 35 to 58 inches

*Thickness of the mollic epipedon:* 10 to 20 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 40 to 50 percent

*Sand content:* 0 to 15 percent

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Texture:* silty clay loam, silt loam

*Clay content:* 20 to 35 percent

*Reaction:* neutral or slightly alkaline  
*Organic matter content:* 1.0 to 3.0 percent  
*Cation-exchange capacity:* 14.1 to 32.8 meq/100 grams

**Bt horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 4 or 5 dry; 3 or 4 moist  
*Chroma:* 2 to 4  
*Texture:* silty clay loam, silty clay, clay  
*Clay content:* 35 to 50 percent  
*Rock fragment content:* 0 to 5 percent  
*Reaction:* neutral to moderately alkaline  
*Organic matter content:* 0.5 to 3.0 percent  
*Cation-exchange capacity:* 18.2 to 44.6 meq/100 grams

**Btk horizon(s):**

*Hue:* 7.5YR or 10YR  
*Value:* 5 or 6 dry; 4 or 5 moist  
*Chroma:* 3 or 4  
*Texture:* silty clay, clay, silty clay loam  
*Clay content:* 35 to 50 percent  
*Rock fragment content:* 0 to 5 percent  
*Calcium carbonate equivalent:* 1 to 5 percent  
*Electrical conductivity:* 0 to 1 mmhos/cm  
*Sodium adsorption ratio:* 0 to 1  
*Reaction:* pH 7.9 to 8.4  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 18.2 to 31.0 meq/100 grams

**Bk horizon(s)/(BCK horizon in some pedons):**

*Hue:* 10YR or 7.5YR  
*Value:* 6 or 8 dry, 4 to 6 moist  
*Chroma:* 3 to 6  
*Texture:* clay loam, silt loam, or silty clay loam  
*Clay content:* 18 to 35 percent  
*Calcium carbonate equivalent:* 5 to 30 percent with at least one horizon greater than 15 percent  
*Electrical conductivity:* 0 to 1 mmhos/cm  
*Gypsum content:* 0 to 3 percent  
*Sodium adsorption ratio:* 0 to 1  
*Cation-exchange capacity:* 10.2 to 22.8 meq/100 grams  
*Organic matter content:* 0.5 to 1.0 percent  
*Reaction:* moderately alkaline to strongly alkaline

## **Raton Series**

*Map unit(s):* BT, RB, Rt  
*Depth class:* shallow  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* lava plateaus  
*Position on landform:* head slope, crest  
*Parent material:* colluvium and residuum weathered from basalt  
*Elevation:* 8,000 to 9,000 feet (2,438 to 2,743 meters)  
*Slope:* 3 to 20 percent

*Climatic data:**Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)*Mean annual air temperature:* 43 to 44 degrees F. (6.0 to 6.7 degrees C.)*Frost-free period:* 80 to 100 days*Taxonomic class:* Clayey-skeletal, smectitic, frigid Lithic Argiustolls**Typical Pedon***Map unit in which located:* Raton cobbly loam, 3 to 20 percent slopes, very stony*Location in survey area:* Raton cobbly loam; in an area of Raton cobbly loam, 3 to 20 percent slopes, very stony; in rangeland; an unsectionalized area on Little Fishers Peak Mesa, T. 35 S., R. 62 W.; USGS Barela topographic quadrangle; 37 degrees, 1 minute, 24.30 seconds north latitude; and 104 degrees, 21 minutes, 8.00 seconds west longitude; UTM 557,617 meters E., 4,097,666 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)*Surface fragments:* about 4 percent cobbles and 5 percent stones

A—0 to 6 inches; very dark grayish brown (10YR 3/2) cobbly loam, very dark brown (10YR 2/2) moist; moderate fine and medium granular structure; very friable, soft, nonsticky and nonplastic; 15 percent cobbles, 10 percent stones, and 5 percent cobbles; noneffervescent; neutral (pH 6.6); clear smooth boundary.

AB—6 to 9 inches; brown (7.5YR 4/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) and dark brown (10YR 3/3) crushed, moist; weak fine and medium subangular blocky structure; friable, slightly sticky and slightly plastic; 30 percent cobbles, 10 percent stones, and 5 percent gravel; noneffervescent; neutral (pH 6.6); clear smooth boundary.

Bt—9 to 17 inches; reddish brown (5YR 4/3) very stony clay, reddish brown (5YR 4/4) and reddish brown (5YR 5/3) crushed, moist; strong medium subangular blocky structure, and strong medium prismatic structure; very firm, very hard, moderately sticky and moderately plastic; 40 percent clay films on all faces of peds; 30 percent stones, 15 percent cobbles, and 5 percent gravel; noneffervescent; neutral (pH 7.0); abrupt wavy boundary.

R—17 to 60 inches; unweathered bedrock; indurated; hard basalt.

**Range in Characteristics***Soil moisture:**Soil moisture regime subclass:* typic*Soil moisture regime class:* ustic*Seasonal pattern:* moist from April through August*Mean annual soil temperature:* 44 to 46 degrees F.*Mean summer soil temperature:* 58 to 64 degrees F.*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)*Depth to diagnostic features:* 10 to 20 inches to lithic contact; 7 to 11 inches to the argillic horizon; 0 inches to the mollic epipedon*Thickness of the mollic epipedon:* 7 to 16 inches*Particle-size control section (weighted average):**Clay content:* 40 to 55 percent*Sand content:* 5 to 30 percent*Rock fragment content:* 35 to 60 percent*A horizon(s):**Hue:* 7.5YR or 10YR*Value:* 3 or 4 dry, 3 or 4 moist*Chroma:* 2 or 3*Texture:* cobbly loam, very cobbly clay loam



*Clay content:* 20 to 40 percent

*Rock fragment content:* 0 to 5 percent fine gravel, 4 to 15 percent medium and coarse gravel, 10 to 30 percent cobbles, and 0 to 10 percent stones

*Reaction:* neutral

*Organic matter content:* 1.0 to 4.0 percent

*Cation-exchange capacity:* 17.7 to 36.8 meq/100 grams

**Bt horizon(s):**

*Hue:* 5YR to 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Texture:* very stony silty clay, very stony clay

*Clay content:* 40 to 55 percent

*Rock fragment content:* 35 to 60 percent total: 1 to 5 percent fine gravel, 4 to 5 percent medium and coarse gravel, 15 to 20 percent cobbles, and 15 to 30 percent stones

*Reaction:* neutral

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 20.4 to 42.4 meq/100 grams

## Ravine Series

*Map unit(s):* RaB

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* pediments, plains

*Position on landform:* rise

*Parent material:* clayey alluvium over residuum weathered from shale

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 1 to 5 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 135 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Ustic Calciargids

### Typical Pedon

*Map unit in which located:* Ravine silty clay loam, 1 to 5 percent slopes

*Location in survey area:* Ravine silty clay loam; in an area of Ravine silty clay loam, 1 to 5 percent slopes; in rangeland; about 2,250 feet east and 2,300 feet south of the northwest corner of section 6, T. 28 S., R. 59 W.; USGS Delhi topographic quadrangle, NAD83; 37 degrees, 38 minutes, 14.90 seconds north latitude; and 104 degrees, 3 minutes, 3.50 seconds west longitude; UTM 583,732 meters E., 4,166,017 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 3 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; many fine and medium roots throughout; strongly effervescent (2 percent calcium carbonate equivalent); slightly alkaline (pH 7.8); abrupt smooth boundary.
- Btk1—3 to 14 inches; yellowish brown (10YR 5/4) silty clay, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; many fine and medium roots



throughout; 30 percent distinct clay films on all faces of peds; 3 percent medium distinct irregular carbonate masses; violently effervescent (11 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.

Btk2—14 to 21 inches; light yellowish brown (2.5Y 6/3) silty clay, olive brown (2.5Y 4/4) moist; moderate medium prismatic structure parting to strong fine and medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; common fine and medium roots throughout; 40 percent distinct clay films on all faces of peds; 8 percent medium distinct irregular carbonate masses; 2 percent gravel; violently effervescent (19 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.

Btk3—21 to 28 inches; grayish brown (2.5Y 5/2) silty clay, dark grayish brown (2.5Y 4/2) moist; strong coarse prismatic structure parting to strong fine and medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine roots; 45 percent distinct clay films on all faces of peds; 10 percent medium and coarse distinct irregular carbonate masses; 2 percent gravel and 10 percent flat weakly cemented 2 to 75 millimeter shale parachanners; violently effervescent (12 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt smooth boundary.

Cr—28 to 60 inches; weathered bedrock; very weakly cemented; soft gray shale.

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 10 to 21 inches to the calcic horizon; 20 to 40 inches to paralithic contact; 3 to 5 inches to the argillic horizon; 0 inches to the ochric epipedon

*Thickness of the calcic horizon:* 12 to 25 inches

*Thickness of the argillic horizon:* 15 to 35 inches

##### *Particle-size control section (weighted average):*

*Clay content:* 40 to 55 percent

*Sand content:* 10 to 20 percent, dominantly very fine sand

*Rock fragment content:* 0 to 15 percent gravel

##### *A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 27 to 35 percent

*Rock fragment content:* 0 to 5 percent fine gravel

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 14.5 to 28.7 meq/100 grams

##### *Btk1 and Btk2 horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 to 7 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* silty clay loam, clay, silty clay

*Clay content:* 35 to 60 percent

*Rock fragment content:* 0 to 5 percent fine gravel  
*Calcium carbonate equivalent:* 10 to 35 percent, increasing with depth  
*Electrical conductivity:* 0 to 6 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 18.2 to 36.3 meq/100 grams

**Btk3 horizon(s):**

*Hue:* 10YR or 2.5Y  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 2 to 4  
*Sodium adsorption ratio:* 0 to 5  
*Texture:* clay, silty clay  
*Clay content:* 40 to 60 percent  
*Parafragment content:* 0 to 5 percent gravel and 5 to 25 percent shale parachanners  
*Calcium carbonate equivalent:* 5 to 20 percent  
*Gypsum content:* 0 to 5 percent  
*Electrical conductivity:* 1 to 6 mmhos/cm  
*Sodium adsorption ratio:* 1 to 10  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 6.7 to 28.9 meq/100 grams

## Razor Series

*Map unit(s):* CaD, MP  
*Depth class:* moderately deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* hills, pediments, plains  
*Position on landform:* rise, head slope, side slope  
*Parent material:* alluvium over residuum weathered from gypsiferous shale  
*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)  
*Slope:* 1 to 12 percent  
*Climatic data:*  
     *Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
     *Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
     *Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Ustertic Haplocambids

### Typical Pedon

*Map unit in which located:* Razor silty clay, 4 to 12 percent slopes  
*Location in survey area:* Razor silty clay; in an area of Razor silty clay, 4 to 12 percent slopes; in rangeland; about 700 feet east and 2,350 feet north of the southwest corner of section 23, T. 27 S., R. 60 W.; USGS Delhi topographic quadrangle; 37 degrees, 40 minutes, 52.60 seconds north latitude; and 104 degrees, 5 minutes, 31.80 seconds west longitude; UTM 580,050 meters E., 4,170,842 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* about 15 percent angular gravel  
 A—0 to 2 inches; pale brown (10YR 6/3, silty clay, brown (10YR 4/3, moist; moderate fine granular structure; friable, slightly hard, moderately sticky and moderately



**Figure 17.—A typical profile of Razor silty clay. These soils formed in alluvium and residuum from shale on pediments. Shale is evident in the lower half of the profile.**

plastic; many very fine and fine roots throughout; 5 percent channers; strongly effervescent; moderately alkaline (pH 8.1); abrupt smooth boundary.

Bw—2 to 10 inches; light brownish gray (10YR 6/2, clay, brown (10YR 4/3, moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; many very fine and fine roots throughout; 30 percent distinct clay bridges; many vertical cracks ranging from 0.5 to 3 cm in thickness; 5 percent channers; violently effervescent; moderately alkaline (pH 8.2); clear wavy boundary.

Bkssy—10 to 28 inches; light brownish gray (10YR 6/2, clay, brown (10YR 5/3, moist; strong coarse prismatic structure; very firm, extremely hard, very sticky and very plastic; few very fine roots between pedes; 30 percent distinct slickensides (pedogenic); many vertical cracks ranging from 0.5 to 3 cm in thickness; 3 percent medium distinct irregular carbonate masses in matrix; 10 percent fine channers; violently effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

Cr—28 to 40 inches; weathered bedrock; very weakly cemented; soft gray gypsiferous shale.

#### **Range in Characteristics**

##### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 53 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 2 to 5 inches to the cambic horizon; 20 to 40 inches to paralithic contact; 0 to 4 inches to secondary carbonates; 0 inches to the ochric epipedon

*Particle-size control section (weighted average):*

*Clay content:* 35 to 60 percent

*Sand content:* 15 to 25 percent

*Rock fragment content:* 0 to 15 percent

A horizon(s):

*Hue:* 2.5Y or 10YR

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 2 to 4

*Texture:* silty clay loam, silty clay

*Clay content:* 27 to 50 percent

*Calcium carbonate equivalent:* 1 to 5 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 5

*Reaction:* moderately alkaline

*Organic matter content:* 0.5 to 3.0 percent

*Cation-exchange capacity:* 14.5 to 44.6 meq/100 grams

Bw horizon(s):

*Hue:* 2.5Y or 10YR

*Value:* 5 or 6 dry, 4 to 5 moist

*Chroma:* 2 or 3

*Texture:* silty clay, silty clay loam, clay

*Clay content:* 35 to 60 percent

*Rock fragment content:* 0 to 10 percent fine to coarse gravel or channers

*Calcium carbonate equivalent:* 1 to 10 percent

*Gypsum content:* 0 to 1 percent

*Electrical conductivity:* 1 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 10

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 18.2 to 36.3 meq/100 grams

Bkss horizon(s)/(C horizon in some pedons):

*Hue:* 2.5Y or 10YR

*Value:* 5 to 7 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* clay, silty clay

*Clay content:* 40 to 60 percent

*Rock fragment content:* 0 to 15 percent fine to coarse gravel or channers

*Calcium carbonate equivalent:* 1 to 10 percent

*Gypsum content:* 0 to 5 percent

*Electrical conductivity:* 1 to 10 mmhos/cm

*Sodium adsorption ratio:* 10 to 14

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 20.4 to 36.3 meq/100 grams

## Ritoazul Series

*Map unit(s):* LG, RaC, MGR

*Depth class:* moderately deep



*Drainage class:* well drained

*Slowest permeability:* .001 to .06 in./hr. (very slow)

*Landform:* hills, pediments, structural benches

*Position on landform:* rise, interfluvium, base slope

*Parent material:* alluvium over residuum weathered from shale

*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)

*Slope:* 0 to 12 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)

*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 12.0 degrees C.)

*Frost-free period:* 120 to 155 days

*Taxonomic class:* Fine, smectitic, mesic Aridic Haplusterts

### Typical Pedon

*Map unit in which located:* Ritoazul silty clay, 0 to 4 percent slopes

*Location in survey area:* Ritoazul silty clay; in an area of Ritoazul silty clay, 0 to 4 percent slopes; in rangeland; about 1,050 feet east and 1,900 feet north of the southwest corner of section 35, T. 34 S., R. 59 W.; USGS Branson topographic quadrangle; 37 degrees, 2 minutes, 7.00 seconds north latitude; and 103 degrees, 59 minutes, 21.00 seconds west longitude; UTM 589,900 meters E., 4,099,271 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 3 inches; dark grayish brown (2.5Y 4/2) silty clay, grayish brown (2.5Y 5/2) moist; weak fine granular structure, and weak fine subangular blocky structure; very friable, soft, moderately sticky and moderately plastic; few very fine roots throughout; 1 percent gravel; violently effervescent (25 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.

Bss1—3 to 18 inches; grayish brown (10YR 5/2) silty clay, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few fine roots throughout; 5 percent distinct slickensides (pedogenic) throughout; violently effervescent (22 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.

Bss2—18 to 29 inches; 80 percent light olive brown (2.5Y 5/3) and 20 percent dark grayish brown (2.5Y 4/2) silty clay, grayish brown (2.5Y 5/2) moist and crushed; weak medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few fine roots in cracks; 5 percent distinct slickensides (pedogenic) throughout; 2 percent shale parachanners and 5 percent gravel; violently effervescent (18 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); gradual wavy boundary.

Bck—29 to 33 inches; 50 percent light olive brown (2.5Y 5/3) and 50 percent dark grayish brown (2.5Y 4/2) silty clay, dark grayish brown (2.5Y 4/2) moist and crushed; massive; very firm, extremely hard, very sticky and very plastic; few very fine roots throughout; 5 percent fine spherical carbonate masses throughout; 15 percent shale parachanners; violently effervescent (7 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.

B/Cr—33 to 36 inches; 30 percent light olive brown (2.5Y 5/3) and 30 percent dark grayish brown (2.5Y 4/2) silty clay loam, weathered bedrock, dark grayish brown (2.5Y 4/2) moist and crushed; massive; very firm, extremely hard, very sticky and very plastic; few very fine roots in cracks; 5 percent fine spherical carbonate masses throughout; violently effervescent (7 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.

Cr—33 to 40 inches; weathered bedrock; very weakly cemented; soft weathered shale.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 50 to 54 degrees F.

*Mean summer soil temperature:* 68 to 73 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 2 to 5 inches to the cambic horizon; 20 to 40 inches to paralithic contact; 2 to 5 inches to slickensides; 0 inches to the ochric epipedon; 0 to 3 inches to secondary carbonates

*Vertic features:* Cracks that extend from the shale bedrock to the surface horizon ranging from 1 to 5 mm in width. Linear extensibility ranges from 3 to 6 cm.

#### *Particle-size control section (weighted average):*

*Clay content:* 40 to 55 percent

*Sand content:* 5 to 20 percent

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* silty clay

*Clay content:* 35 to 45 percent

*Rock fragment content:* 0 to 5 percent gravel

*Calcium carbonate equivalent:* 15 to 30 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 2

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 22.8 to 35.6 meq/100 grams

#### *Bss horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* silty clay, clay

*Clay content:* 40 to 55 percent

*Rock fragment content:* 0 to 15 percent gravel and 0 to 5 percent shale parachanners

*Calcium carbonate equivalent:* 15 to 30 percent

*Electrical conductivity:* 0 to 1 mmhos/cm

*Sodium adsorption ratio:* 0 to 1

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 20.4 to 33.7 meq/100 grams

#### *BCK horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Texture:* silty clay, clay

*Clay content:* 35 to 50 percent  
*Rock fragment content:* 0 to 5 percent, with 5 to 15 percent shale parachanners  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Gypsum content:* 1 to 10 percent  
*Electrical conductivity:* 1 to 3 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 6.0 to 24.7 meq/100 grams

**B/Cr horizon(s):**

*Texture:* clay loam, silty clay, silty clay loam  
*Clay content:* 35 to 50 percent  
*Parachanners (shale) content:* 35 to 50 percent  
*Calcium carbonate equivalent:* 1 to 10 percent  
*Gypsum content:* 10 to 25 percent  
*Electrical conductivity:* 1 to 3 mmhos/cm  
*Sodium adsorption ratio:* 1 to 2  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 6.0 to 24.7 meq/100 grams

## Rizozo Series

*Map unit(s):* RzD, ZR, ZRF  
*Local phase(s):* moist  
*Depth class:* very shallow to shallow  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* hills, scarps  
*Position on landform:* crest  
*Parent material:* slope alluvium and residuum weathered from sandstone and siltstone  
*Elevation:* 4,500 to 5,500 feet (1,372 to 1,676 meters)  
*Slope:* 3 to 30 percent  
*Climatic data:*  
     *Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)  
     *Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)  
     *Frost-free period:* 130 to 155 days  
*Taxonomic class:* Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Rizozo-Rock outcrop complex, moist, 3 to 20 percent slopes  
*Location in survey area:* Rizozo gravelly fine sandy loam; in an area of Rizozo-Rock outcrop complex, moist, 3 to 20 percent slopes; in forest land; about 2,100 feet west and 2,500 feet north of the southeast corner of section 8, T. 35 S., R. 54 W.; USGS Jesus Canyon topographic quadrangle; 37 degrees, 0 minutes, 38.20 seconds north latitude; and 103 degrees, 29 minutes, 10.00 seconds west longitude; UTM 634,680 meters E., 4,097,120 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* about 30 percent fine, medium, and coarse gravel derived from sandstone



- A—0 to 4 inches; reddish brown (2.5YR 5/4) gravelly fine sandy loam, dark reddish brown (2.5YR 3/4) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; many fine roots and many very fine roots; 18 percent gravel; strongly effervescent (3 percent calcium carbonate equivalent); slightly alkaline (pH 7.8); gradual smooth boundary.
- C—4 to 11 inches; red (2.5YR 4/6) gravelly very fine sandy loam, dark reddish brown (2.5YR 3/4) moist; weak fine and medium subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; common very fine roots; 2 percent fine faint irregular carbonate masses in matrix; 25 percent gravel; violently effervescent (12 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt irregular boundary.
- R—11 to 60 inches; unweathered bedrock; indurated; hard red sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 55 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to restrictive feature:* 6 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 6 to 20 inches to lithic contact; 0 inches to the ochric epipedon

#### *Particle-size control section (weighted average):*

*Clay content:* 10 to 25 percent

*Sand content:* 55 to 70 percent, with 5 to 25 percent fine sand and coarser

*Rock fragment content:* 0 to 5 percent stones, 0 to 5 percent cobbles, and 5 to 30 percent pebbles

#### A horizon(s):

*Hue:* 10R through 5YR

*Value:* 4 through 6 dry, 3 through 5 moist

*Chroma:* 4 through 6

*Texture:* gravelly fine sandy loam, channery very fine sandy loam

*Clay content:* 10 to 20 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, and 0 to 5 percent cobbles

*Calcium carbonate equivalent:* 0 to 5 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* slightly alkaline to moderately alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 16.6 meq/100 grams

#### C horizon(s):

*Hue:* 10R through 5YR

*Value:* 4 through 6 dry, 3 through 5 moist

*Chroma:* 4 through 6

*Texture:* channery very fine sandy loam, gravelly very fine sandy loam, channery loam

*Clay content:* 10 to 25 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, and 0 to 5 percent cobbles

*Calcium carbonate equivalent:* 5 to 15 percent

*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* slightly alkaline to moderately alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 7.6 to 19.7 meq/100 grams

## Rombo Series

*Map unit(s):* SR, LRT  
*Depth class:* moderately deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* hills  
*Position on landform:* head slope, side slope  
*Parent material:* slope alluvium and residuum weathered from shale and siltstone  
*Elevation:* 7,000 to 8,500 feet (2,134 to 2,591 meters)  
*Slope:* 25 to 50 percent  
*Climatic data:*  
     *Mean annual precipitation:* 16 to 22 inches (406 to 559 millimeters)  
     *Mean annual air temperature:* 42 to 46 degrees F. (5.6 to 8.0 degrees C.)  
     *Frost-free period:* 70 to 100 days  
*Taxonomic class:* Fine, mixed, superactive, frigid Typic Haplustepts

### Typical Pedon

*Map unit in which located:* Saruche-Rombo-Rock outcrop complex, 25 to 50 percent slopes  
*Location in survey area:* Rombo channery silty clay loam; in an area of Saruche-Rombo-Rock outcrop complex, 25 to 50 percent slopes; in shrub cover; about 1.25 miles north of the state line, 300 feet west of fork in Colorou Canyon, T. 34 S., R. 65 W.; USGS Valdez topographic quadrangle; 37 degrees, 0 minutes, 34.00 seconds north latitude; and 104 degrees, 38 minutes, 3.00 seconds west longitude; UTM 532,547 meters E., 4,095,978 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* 30 percent sandstone channers

A—0 to 4 inches; grayish brown (2.5Y 5/2) channery silty clay loam, very dark grayish brown (2.5Y 3/2) moist; moderate very fine granular structure; firm, hard, slightly sticky and slightly plastic; many coarse roots throughout; 20 percent gravel-sized channers; noneffervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bw—4 to 24 inches; grayish brown (2.5Y 5/2) channery silty clay loam, dark grayish brown (2.5Y 4/2) moist; 10 percent fine faint yellowish brown (10YR 5/6) mottles; moderate fine subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; many coarse roots throughout; 25 percent sandstone channers and 10 percent shale parachanners; noneffervescent; neutral (pH 6.8); clear smooth boundary.

Bk—24 to 34 inches; grayish brown (2.5Y 5/2) very parachannery silty clay loam, dark grayish brown (2.5Y 4/2) moist; weak fine subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; common coarse roots throughout; 3 percent fine distinct threadlike carbonate masses on bottom of rock fragments; 10 percent sandstone channers and 30 percent shale parachanners; noneffervescent; neutral (pH 7.0); clear smooth boundary.

Cr—34 to 60 inches; bedrock; very weakly cemented; 2 percent fine irregular carbonate threads in cracks; soft noncalcareous shale and siltstone.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some part from April through August

*Mean annual soil temperature:* 43 to 47 degrees F.

*Mean summer soil temperature:* 58 to 62 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 3 to 7 inches to the cambic horizon; 20 to 40 inches to paralithic contact; 0 inches to the ochric epipedon

*Particle-size control section (weighted average):*

*Clay content:* 35 to 45 percent

*Rock fragment content:* 10 to 25 percent channers

*A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 30 to 40 percent

*Rock fragment content:* 15 to 30 percent channers

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 23.3 to 31.8 meq/100 grams

*Bw horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Texture:* channery clay, channery silty clay loam

*Clay content:* 35 to 50 percent

*Reaction:* neutral or slightly alkaline

*Rock fragment content:* 15 to 30 percent channers and 5 to 15 percent shale parachanners

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 26.7 to 37.9 meq/100 grams

*Bk horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Clay content:* 35 to 50 percent

*Texture:* parachannery silty clay loam, parachannery clay

*Calcium carbonate equivalent:* 3 to 5 percent

*Rock fragments:* 5 to 15 percent total: 15 to 35 percent shale fragments and 5 to 20 percent channers

*Calcium carbonate equivalent:* 3 to 5 percent

*Electrical conductivity:* 0 to 1 mmhos/cm

*Sodium adsorption ratio:* 0 to 2

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 23.4 to 36.9 meq/100 grams

## Romound Series

*Map unit(s):* Rd, SG

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* pediments, structural benches

*Position on landform:* rise

*Parent material:* slope alluvium and/or eolian deposits over residuum weathered from shale and gypsum

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Slope:* 1 to 9 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 135 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Ustic Haplogypsis

### Typical Pedon

*Map unit in which located:* Romound silt loam, 1 to 5 percent slopes

*Location in survey area:* Romound silt loam; in an area of Romound silt loam, 1 to 5 percent slopes; in rangeland; about 1,800 feet west and 1,950 feet south of the northeast corner of section 2, T. 28 S., R. 53 W.; USGS Rock Canyon topographic quadrangle; 37 degrees, 38 minutes, 20.00 seconds north latitude; and 103 degrees, 19 minutes, 15.30 seconds west longitude; UTM 648,145 meters E., 4,167,076 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak fine granular structure, and weak medium subangular blocky structure; very friable, soft, nonsticky and nonplastic; common very fine and fine roots; violently effervescent (10.0 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.

Bw—4 to 14 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; common very fine roots; 1 percent medium distinct carbonate masses throughout; 2 percent gravel; violently effervescent (13.0 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt smooth boundary.

Cy1—14 to 24 inches; pink (7.5YR 8/3) loam, light brown (7.5YR 6/3) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; few very fine roots; 28 percent medium distinct gypsum crystals throughout (48.0 gypsum equivalent); 3 percent gravel; violently effervescent (8.0 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); clear wavy boundary.

Cy2—24 to 30 inches; pink (7.5YR 7/3) loam, light brown (7.5YR 6/3) moist; massive; very friable, slightly hard, slightly sticky and slightly plastic; 30 percent medium distinct gypsum crystals (33.0 gypsum equivalent); 5 percent gravel; violently effervescent (10.0 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); abrupt irregular boundary.

Cr—30 to 40 inches; weathered bedrock; very weakly cemented; soft interbedded shale and gypsum.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 76 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (paralithic)

*Depth to diagnostic features:* 9 to 17 inches to the gypsic horizon; 3 to 5 inches to the cambic horizon; 20 to 40 inches to paralithic contact; 0 inches to the ochric epipedon

#### *Particle-size control section (weighted average):*

*Clay content:* 18 to 30 percent

*Sand content:* 25 to 60 percent

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 15 to 27 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 1 to 8 mmhos/cm

*Reaction:* moderately alkaline or strongly alkaline

*Sodium adsorption ratio:* 0 to 5

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 12.5 to 22.3 meq/100 grams

#### *Bw horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Texture:* silt loam, loam

*Clay content:* 18 to 27 percent

*Rock fragment content:* 0 to 4 percent fine gravel

*Calcium carbonate equivalent:* 5 to 15 percent

*Gypsum content:* 0 to 3 percent

*Electrical conductivity:* 2 to 8 mmhos/cm

*Sodium adsorption ratio:* 0 to 8

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 14.7 to 21.7 meq/100 grams

#### *Cy horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 6 to 8 dry, 5 or 6 moist

*Chroma:* 2 to 4

*Texture:* fine sandy loam, loam, or silt loam

*Texture:* loam, silt loam

*Clay content:* 5 to 25 percent

*Rock fragment content:* 0 to 6 percent fine gravel and 0 to 3 percent medium and coarse gravel

*Calcium carbonate equivalent:* 1 to 10 percent

*Gypsum content:* 25 to 55 percent

*Electrical conductivity:* 4 to 16 mmhos/cm  
*Sodium adsorption ratio:* 0 to 13  
*Reaction:* slightly alkaline to strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 4.1 to 19.7 meq/100 grams

## Ryegate Series

*Map unit(s):* RyC  
*Depth class:* moderately deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)  
*Landform:* fans, hills, plains, ridges  
*Position on landform:* side slope, rise  
*Parent material:* eolian deposits over residuum weathered from sandstone  
*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)  
*Slope:* 1 to 8 percent  
*Climatic data:*  
     *Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
     *Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
     *Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Calcic Argiustolls

### Typical Pedon

*Map unit in which located:* Ryegate sandy loam, 1 to 8 percent slopes  
*Location in survey area:* Ryegate sandy loam; in an area of Ryegate sandy loam, 1 to 8 percent slopes; in rangeland; about 800 feet west and 1,900 feet south of the northeast corner of section 34, T. 32 S., R. 53 W.; USGS Kim South topographic quadrangle; 37 degrees, 12 minutes, 58.90 seconds north latitude; and 103 degrees, 20 minutes, 20.00 seconds west longitude; UTM 647,384 meters E., 4,120,166 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 10 inches; grayish brown (10YR 5/2) sandy loam, dark brown (10YR 3/3) and dark brown (10YR 3/3) moist and crushed; weak very fine granular structure; very friable, soft, nonsticky and nonplastic; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bt—10 to 21 inches; brown (10YR 5/3) sandy clay loam, dark yellowish brown (10YR 4/4) and brown (10YR 4/3) moist and crushed; moderate medium subangular blocky structure; friable, very hard, moderately sticky and slightly plastic; 45 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

BCt—21 to 30 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) and dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; very friable, hard, slightly sticky and nonplastic; 25 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.4); clear wavy boundary.

BC—30 to 32 inches; brown (10YR 5/3) sandy clay loam, dark yellowish brown (10YR 4/4) and brown (10YR 4/3) moist; moderate fine subangular blocky structure; friable, very hard, moderately sticky and slightly plastic; 25 percent distinct clay films on all faces of peds; 10 percent gravel; strongly effervescent (1 percent calcium carbonate equivalent); slightly alkaline (pH 7.6); abrupt wavy boundary.



2Bk—32 to 38 inches; very pale brown (10YR 7/3) gravelly loam, light yellowish brown (10YR 6/4) and very pale brown (10YR 7/4) moist; massive; friable, very hard, slightly sticky and nonplastic; 30 percent gravel; violently effervescent (20 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); abrupt wavy boundary.

R—38 to 72 inches; unweathered bedrock; indurated; hard Dakota sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Depth to diagnostic features:* 20 to 40 inches to lithic contact; 7 to 15 inches to the argillic horizon; 0 inches to the mollic epipedon; 12 to 30 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 15 to 30 inches

*Thickness of the mollic epipedon:* 7 to 15 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 45 to 70 percent, with more than 35 percent fine and coarser sand

*Rock fragment content:* 0 to 15 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 5 to 20 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 2.0 to 4.0 percent

*Cation-exchange capacity:* 4.9 to 17.5 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 to 4 moist

*Chroma:* 2 to 4

*Clay content:* 20 to 35 percent

*Sand content:* 45 to 70 percent, with more than 35 percent fine and coarser sand

*Rock fragment content:* 0 to 6 percent fine gravel

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 16.2 to 27.5 meq/100 grams

#### *2Bk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 6 or 7 dry, 5 or 6 moist

*Chroma:* 2 to 4

*Texture:* gravelly loam, gravelly sandy loam, sandy loam

*Clay content:* 10 to 20 percent

*Rock fragment content:* 7 to 15 percent fine gravel and 8 to 20 percent medium and coarse gravel

*Calcium carbonate equivalent:* 15 to 25 percent



*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 7.6 to 16.2 meq/100 grams

## Sarcillo Series

*Map unit(s):* LST, LRT

*Depth class:* shallow

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* hills

*Position on landform:* base slope, interfluve

*Parent material:* slope alluvium weathered from sandstone and shale

*Elevation:* 6,500 to 7,800 feet (1,981 to 2,377 meters)

*Slope:* 3 to 40 percent

*Climatic data:*

*Mean annual precipitation:* 15 to 18 inches (381 to 457 millimeters)

*Mean annual air temperature:* 48 to 52 degrees F. (9.0 to 11.0 degrees C.)

*Frost-free period:* 100 to 125 days

*Taxonomic class:* Clayey, smectitic, mesic Lithic Haplustalfs

### Typical Pedon

*Map unit in which located:* Lorencito-Sarcillo-Trujillo complex, 3 to 25 percent slopes

*Location in survey area:* Sarcillo very fine sandy loam; in an area of Lorencito-Sarcillo-Trujillo complex, 3 to 25 percent slopes; in forest land; about 1,100 feet south and 2,500 feet west of the northeast corner of section 27, T. 33 S., R. 65 W.; USGS Madrid topographic quadrangle; 37 degrees, 8 minutes, 48.00 seconds north latitude; and 104 degrees, 39 minutes, 27.90 seconds west longitude; UTM 530,393 meters E., 4,111,199 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 5 inches; light brown (7.5YR 6/4) loam, brown (7.5YR 4/4) moist; weak very fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; noneffervescent; neutral (pH 6.8); clear smooth boundary.
- Bt—5 to 8 inches; pinkish gray (7.5YR 6/2) clay loam, brown (7.5YR 4/2) moist; strong fine subangular blocky structure; firm, hard, moderately sticky and moderately plastic; many very fine and fine roots; 45 percent continuous distinct clay films on faces of peds; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.
- Btss1—8 to 13 inches; light brown (7.5YR 6/4) clay, brown (7.5YR 4/4) moist; moderate medium prismatic structure parting to moderate fine angular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine roots; 35 percent distinct slickensides (pedogenic) on all faces of peds and 50 percent continuous distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.
- Btss2—13 to 16 inches; pale brown (10YR 6/3) clay, brown (10YR 5/3) moist; strong medium subangular blocky structure; very firm, extremely hard, very sticky and very plastic; few very fine roots; 25 percent distinct clay bridges on all faces of peds and 50 percent distinct slickensides (pedogenic) on vertical faces of peds; strongly effervescent; slightly alkaline (pH 7.8); abrupt smooth boundary.
- R—16 to 60 inches; unweathered bedrock; indurated; hard fractured sandstone.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 49 to 53 degrees F.

*Mean summer soil temperature:* 64 to 68 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 10 to 20 inches to lithic contact; 3 to 6 inches to the argillic horizon; 5 to 10 inches to slickensides; 0 inches to the ochric epipedon; 10 to 20 inches to secondary carbonates

*Particle-size control section (weighted average):*

*Clay content:* 35 to 45 percent

*Sand content:* 5 to 30 percent

*Rock fragment content:* 0 to 20 percent gravel and cobbles

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 to 4

*Clay content:* 15 to 30 percent

*Rock fragment content:* 0 to 9 percent fine gravel and 0 to 6 percent medium and coarse gravel

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 5.0 to 20.0 meq/100 grams

*Bt horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* clay, clay loam, silty clay

*Clay content:* 35 to 45 percent

*Rock fragment content:* 0 to 7 percent fine gravel, 0 to 6 percent medium and coarse gravel, 0 to 1 percent cobbles, and 0 to 1 percent stones

*Reaction:* neutral to slightly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 20.0 to 40.0 meq/100 grams

*Btss horizon(s):*

*Hue:* 7.5YR through 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 through 6

*Texture:* clay, silty clay

*Clay content:* 40 to 50 percent

*Rock fragment content:* 0 to 6 percent fine gravel, 0 to 7 percent medium and coarse gravel, 0 to 1 percent cobbles, and 0 to 1 percent stones

*Reaction:* neutral to moderately alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 20.0 to 40.0 meq/100 grams

*\*Note:* This map unit contains few to many slickensides.

## Saruche Series

*Map unit(s):* SR

*Depth class:* very shallow to shallow

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* hills

*Position on landform:* side slope, head slope

*Parent material:* slope alluvium and residuum weathered from shale

*Elevation:* 7,000 to 8,200 feet (2,134 to 2,500 meters)

*Slope:* 25 to 50 percent

*Climatic data:*

*Mean annual precipitation:* 16 to 22 inches (406 to 559 millimeters)

*Mean annual air temperature:* 42 to 46 degrees F. (5.6 to 8.0 degrees C.)

*Frost-free period:* 80 to 100 days

*Taxonomic class:* Clayey, mixed, superactive, frigid, shallow Typic Haplustepts

### Typical Pedon

*Map unit in which located:* Saruche-Rombo-Rock outcrop complex, 25 to 50 percent slopes

*Location in survey area:* Saruche channery silty clay loam; in an area of Saruche-Rombo-Rock outcrop complex, 25 to 50 percent slopes; in shrub cover; an unsectionalized area projected to be 1,650 feet north and 1,000 feet west of the southeast corner of section 11, T. 35 S., R. 65 W.; USGS McWilliams Canyon topographic quadrangle; 37 degrees, 0 minutes, 29.00 seconds north latitude; and 104 degrees, 38 minutes, 11.90 seconds west longitude; UTM 532,336 meters E., 4,095,840 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 4 inches; grayish brown (2.5Y 5/2) channery silty clay loam, dark grayish brown (2.5Y 4/2) moist; moderate very fine granular structure; very firm, very hard, moderately sticky and moderately plastic; few coarse roots throughout; 30 percent channers; noneffervescent; neutral (pH 6.8); clear smooth boundary.
- Bw—4 to 16 inches; light brownish gray (2.5Y 6/2) paragravelly silty clay loam, grayish brown (2.5Y 5/2) moist; weak fine subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; few coarse roots throughout; 30 percent shale paragravel; noneffervescent; neutral (pH 6.8); clear smooth boundary.
- Cr1—16 to 20 inches; weathered bedrock; very weakly cemented; soft interbedded shale and siltstone.
- Cr2—20 to 40 inches; weathered bedrock; moderately cemented; fractured shale, calcareous in seams.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some parts from April through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 57 to 61 degrees F.

*Depth to restrictive feature:* 8 to 20 inches to bedrock (paralithic)

*Depth to diagnostic features:* 8 to 20 inches to paralithic contact; 0 inches to the ochric epipedon

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 5 to 30 percent

*Rock fragment content:* 0 to 35 percent

*A horizon(s):*

*Hue:* 2.5Y to 7.5YR

*Value:* 4 to 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Clay content:* 35 to 40 percent

*Rock fragment content:* 5 to 13 percent fine gravel, 10 to 17 percent medium and coarse gravel, and 0 to 5 percent cobbles

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 26.7 to 31.0 meq/100 grams

*Bw horizon(s):*

*Hue:* 2.5Y to 7.5YR

*Value:* 5 or 6, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* silty clay loam, clay loam, clay

*Clay content:* 35 to 50 percent

*Rock fragment content:* 0 to 7 percent fine gravel and 0 to 8 percent medium and coarse gravel

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 23.4 to 37.9 meq/100 grams

## Scandard Series

*Map unit(s):* SL

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* mountain slopes

*Position on landform:* mountainflank

*Parent material:* colluvium and residuum weathered from sandstone

*Elevation:* 8,000 to 9,800 feet (2,439 to 2,987 meters)

*Slope:* 35 to 60 percent

*Climatic data:*

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 39 to 42 degrees F. (4.0 to 5.5 degrees C.)

*Frost-free period:* 50 to 80 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive Ustollic Haplocryalfs

### Typical Pedon

*Map unit in which located:* Scandard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony

*Location in survey area:* Scandard cobbly sandy loam; in an area of Scandard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony; in forest land;

about 1.6 miles east of Costilla County line and 3 miles north of the New Mexico State line, T. 34 S., R. 69 W.; USGS Culebra Peak topographic quadrangle; 37 degrees, 2 minutes, 7.00 seconds north latitude; and 105 degrees, 7 minutes, 33.90 seconds west longitude; UTM 488,797 meters E., 4,098,801 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 10 percent cobbles and 5 percent stones

- Oi—0 to 1 inch; slightly decomposed plant material; dominantly moss, needles, and twigs; 5 percent stones, 10 percent gravel, and 15 percent cobbles.
- A—1 inch to 7 inches; dark reddish brown (5YR 3/2) cobbly sandy loam, dark reddish brown (5YR 2/2) moist; 18 percent clay; moderate fine granular structure; friable, soft, nonsticky and nonplastic; many fine and medium roots throughout; 5 percent stones, 10 percent gravel, and 15 percent cobbles; noneffervescent; neutral (pH 7.0); clear smooth boundary.
- E—7 to 11 inches; weak red (2.5YR 5/2) very gravelly sandy loam, weak red (2.5YR 4/2) moist; weak fine granular structure; friable, soft, nonsticky and nonplastic; many fine and medium roots throughout; 10 percent cobbles and 30 percent gravel; noneffervescent; neutral (pH 6.6); clear wavy boundary.
- Bt1—11 to 18 inches; weak red (10R 5/3) very gravelly sandy clay loam, weak red (10R 4/3) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many fine and medium roots throughout; 30 percent clay films on all faces of peds; 5 percent cobbles and 35 percent gravel; noneffervescent; slightly acid (pH 6.4); clear smooth boundary.
- Bt2—18 to 25 inches; weak red (10R 4/4) very gravelly sandy clay loam, dusky red (10R 3/4) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many fine and medium roots throughout; 20 percent clay films on all faces of peds; 45 percent gravel; noneffervescent; slightly acid (pH 6.4); gradual wavy boundary.
- Cr—25 to 27 inches; weathered bedrock; weakly cemented; soft fractured sandstone.
- R—27 to 60 inches; unweathered bedrock; indurated; hard red sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist continuously throughout the year with peak periods from April through August

*Mean annual soil temperature:* 40 to 45 degrees F.

*Mean summer soil temperature:* 46 to 47 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Depth to diagnostic features:* 20 to 40 inches to lithic contact; 4 to 9 inches to albic materials; 8 to 17 inches to the argillic horizon; 0 to 3 inches to the ochric epipedon

*Thickness of the argillic horizon:* 12 to 26 inches

*Depth to the base of the argillic horizon:* 20 to 40 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 50 to 70 percent

*Rock fragment content:* 35 to 60 percent

#### *A horizon(s):*

*Hue:* 2.5YR to 7.5YR

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 10 to 20 percent

*Rock fragment content:* 2 to 5 percent fine gravel, 3 to 10 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 8.9 to 17.3 meq/100 grams

**E horizon(s):**

*Hue:* 10R to 5YR

*Value:* 5 to 7 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* very gravelly sandy loam, very cobbly sandy loam

*Clay content:* 10 to 20 percent

*Rock fragment content:* 5 to 15 percent fine gravel, 20 to 25 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* moderately acid or slightly acid

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 16.6 meq/100 grams

**Bt horizon(s):**

*Hue:* 10R to 5YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 3 to 6

*Texture:* very cobbly sandy clay loam, very gravelly sandy clay loam

*Clay content:* 20 to 35 percent

*Sand content:* 50 to 75 percent, dominantly fine sand and coarser

*Rock fragment content:* 35 to 60 percent total: 10 to 15 percent fine gravel, 20 to 35 percent medium and coarse gravel, 0 to 15 percent cobbles, and 0 to 5 percent stones

*Reaction:* moderately acid or slightly acid

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

## Schamber Series

*Map unit(s):* SM

*Depth class:* Very deep

*Drainage class:* well drained

*Permeability:* somewhat excessively drained

*Landform:* terrace remnant

*Parent material:* alluvium

*Elevation:* 5,500 to 6,500 feet

*Slope:* 3 to 25 percent

*Climatic data:*

*Average annual precipitation:* 13 to 15 inches

*Average annual temperature:* 50 to 53 degrees F.

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Sandy-skeletal, mixed, mesic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* From an area of Chamber-Midway complex, 3 to 25 percent slopes

*Location in survey area:* about 1,200 feet south and 400 feet west of the northeast corner of section 24, T. 26 S., R. 68 W.



- A—0 to 4 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, nonsticky and nonplastic; 30 percent pebbles; mildly alkaline; clear smooth boundary.
- AC—4 to 12 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; 50 percent pebbles and 10 percent cobbles; violently effervescent; moderately alkaline; gradual smooth boundary.
- Ck—12 to 60 inches; light brown (7.5YR 6/4) extremely gravelly loamy sand, brown (7.5YR 4/4) moist; single grain; loose, nonsticky and nonplastic; lime accumulations on undersides of rock fragments; 50 percent pebbles and 15 percent cobbles; violently effervescent; moderately alkaline.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Soil moisture:* The soil moisture control section is moist from April through June and intermittently moist in July and August; aridic moisture regime bordering on ustic.

*Average annual soil temperature:* 51 to 54 degrees F.

*Average summer soil temperature:* 70 to 73 degrees F.

*Depth to carbonates:* 0 to 8 inches

#### *Particle-size control section (weighted average):*

*Rock fragment content:* 35 to 70 percent

#### *A horizon:*

*Hue:* 10YR or 7.5YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Reaction:* slightly alkaline or moderately alkaline

#### *C horizon:*

*Hue:* 10YR or 7.5YR

*Value:* 5 through 8

*Chroma:* 3 or 4

*Texture:* gravelly sandy loam, very gravelly sandy loam, extremely gravelly loamy sand

*Reaction:* Moderately alkaline or strongly alkaline

The Schamberg soils in this county are found only in one small area adjacent to Huerfano County. This description was taken from documentation in the Huerfano County Soil Survey for the purpose of matching along county boundaries.

## Schwacheim Series

*Map unit(s):* ES, Sc, ScR

*Depth class:* shallow

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* lava plateaus

*Parent material:* colluvium, slope alluvium and residuum weathered from basalt

*Elevation:* 8,600 to 10,000 feet (2,621 to 3,048 meters)

*Slope:* 3 to 30 percent



*Climatic data:**Mean annual precipitation:* 22 to 26 inches (559 to 660 millimeters)*Mean annual air temperature:* 38 to 42 degrees F. (3.3 to 5.6 degrees C.)*Frost-free period:* 60 to 75 days*Taxonomic class:* Loamy-skeletal, mixed, superactive Lithic Haplocryolls**Typical Pedon***Map unit in which located:* Schwacheim gravelly silt loam, 3 to 20 percent slopes, very stony*Location in survey area:* Schwacheim gravelly silt loam; in an area of Schwacheim gravelly silt loam, 3 to 20 percent slopes, very stony; in rangeland; an unsectionalized area on the Fishers Peak Mesa, T. 34 S., R. 63 W.; USGS Fishers Peak topographic quadrangle; 37 degrees, 2 minutes, 13.00 seconds north latitude; and 104 degrees, 25 minutes, 57.00 seconds west longitude; UTM 550,472 meters E., 4,099,130 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)*Surface fragments:* about 15 percent gravel, 3 percent cobbles, and 3 percent stones*A1—*0 to 5 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine and fine roots; 5 percent cobbles and 25 percent gravel; noneffervescent; neutral (pH 6.6); abrupt smooth boundary.*A2—*5 to 9 inches; dark brown (7.5YR 3/2) very gravelly silt loam, very dark brown (7.5YR 2/2) moist; weak fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine and fine roots; 10 percent cobbles and 40 percent gravel; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.*Bw—*9 to 14 inches; brown (7.5YR 4/3) extremely gravelly silty clay loam, dark brown (7.5YR 3/3) moist; moderate fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine roots; 10 percent distinct clay bridges on vertical faces of peds; 10 percent cobbles and 60 percent gravel; noneffervescent; neutral (pH 6.6); abrupt wavy boundary.*R—*14 to 60 inches; unweathered bedrock; indurated; hard fractured basalt; few roots in the cracks.**Range in Characteristics***Soil moisture:**Soil moisture regime subclass:* ustic*Soil moisture regime class:* udic*Seasonal pattern:* moist continuously with peak periods from April through August*Mean annual soil temperature:* 39 to 43 degrees F.*Mean summer soil temperature:* 48 to 50 degrees F.*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)*Depth to diagnostic features:* 10 to 20 inches to lithic contact; 0 inches to the mollic epipedon*Thickness of the mollic epipedon:* 7 to 20 inches*Particle-size control section (weighted average):**Clay content:* 20 to 35 percent*Sand content:* 15 to 35 percent*Rock fragment content:* 35 to 70 percent*A horizon(s):**Hue:* 7.5YR or 10YR*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 1 or 2

*Texture:* gravelly silt loam, very gravelly silt loam, very gravelly loam

*Clay content:* 20 to 27 percent

*Rock fragment content:* 20 to 60 percent total: 5 to 18 percent fine gravel, 10 to 25 percent medium and coarse gravel, 0 to 12 percent cobbles, and 0 to 5 percent stones

*Reaction:* neutral or slightly acid

*Organic matter content:* 1.0 to 5.0 percent

*Cation-exchange capacity:* 10.0 to 25.0 meq/100 grams

Bw horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 3 to 5 dry, 2 to 4 moist

*Chroma:* 2 or 3

*Texture:* extremely gravelly clay loam, extremely gravelly silt loam, extremely gravelly silty clay loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 15 to 20 percent fine gravel, 35 to 45 percent medium and coarse gravel, 10 to 10 percent cobbles, and 0 to 5 percent stones

*Reaction:* neutral or slightly acid

*Organic matter content:* 1.0 to 4.0 percent

*Cation-exchange capacity:* 10.0 to 30.0 meq/100 grams

## Shingle Series

*Map unit(s):* ShD

*Depth class:* shallow

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* hills, pediments

*Position on landform:* head slope, rise, side slope

*Parent material:* slope alluvium over residuum weathered from gypsiferous shale

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,828 meters)

*Slope:* 2 to 15 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Loamy, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Shingle-Penrose complex, 2 to 15 percent slopes

*Location in survey area:* Shingle clay loam; in an area of Shingle-Penrose complex, 2 to 15 percent slopes; in rangeland; about 1,800 feet south and 1,000 feet west of the northeast corner of section 17, T. 31 S., R. 63 W.; USGS Hoehne topographic quadrangle; 37 degrees, 20 minutes, 52.40 seconds north latitude; and 104 degrees, 28 minutes, 9.70 seconds west longitude; UTM 546,998 meters E., 4,133,597 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; weak fine and medium subangular blocky structure; firm, slightly

hard, moderately sticky and moderately plastic; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

C—4 to 11 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate fine platy structure; firm, hard, moderately sticky and moderately plastic; 6 percent shale parachanners; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Cr—11 to 60 inches; weathered bedrock; very weakly cemented; soft gypsiferous shale.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (paralithic)

*Depth to diagnostic features:* 10 to 20 inches to paralithic contact; 0 inches to the ochric epipedon; 0 to 4 inches to secondary carbonates

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 15 to 35 percent

*Rock fragment content:* 0 to 15 percent

#### *A horizon(s):*

*Hue:* 10YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 dry

*Chroma:* 2 to 4

*Clay content:* 27 to 35 percent

*Calcium carbonate equivalent:* 1 to 10 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* pH 7.4 to 8.4

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 21.2 to 27.5 meq/100 grams

#### *C horizon(s):*

*Hue:* 10YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 dry

*Chroma:* 2 to 4

*Texture:* clay loam, loam

*Clay content:* 20 to 35 percent

*Parafragment content:* 0 to 8 percent weakly cemented shale

*Calcium carbonate equivalent:* 1 to 15 percent

*Gypsum content:* 1 to 5 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Reaction:* pH 7.4 to 8.4

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 16.2 to 27.5 meq/100 grams

## Sitcan Series

*Map unit(s):* Sn

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fans, terraces

*Position on landform:* tread, rise

*Parent material:* loamy alluvium derived from sedimentary rock

*Elevation:* 4,500 to 5,200 feet (1,372 to 1,829 meters)

*Slope:* 1 to 4 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Aridic Argiustolls

### Typical Pedon

*Map unit in which located:* Sitcan fine sandy loam, 1 to 4 percent slopes

*Location in survey area:* Sitcan fine sandy loam; in an area of Sitcan fine sandy loam, 1 to 4 percent slopes; in rangeland; about 200 feet south and 2,400 feet east of the northwest corner of section 25, T. 29 S., R. 54 W.; USGS Icehouse Canyon topographic quadrangle; 37 degrees, 29 minutes, 49.90 seconds north latitude; and 103 degrees, 24 minutes, 44.40 seconds west longitude; UTM 640,343 meters E., 4,151,196 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 10 inches; dark grayish brown (10YR 4/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; many fine roots throughout; noneffervescent; neutral (pH 7.0); clear smooth boundary.

AB—10 to 15 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.2); clear smooth boundary.

Bt1—15 to 28 inches; brown (10YR 5/3) clay loam, brown (10YR 4/3) crushed, moist; moderate fine prismatic structure parting to moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many fine roots throughout; 45 percent distinct clay films on all faces of peds and in pores; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—28 to 32 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many fine roots throughout; 35 percent distinct clay films on all faces of peds and in pores; 7 percent gravel; strongly effervescent; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bk1—33 to 40 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; common fine roots throughout; 1 percent medium distinct threadlike carbonate masses throughout; 1 percent gravel; violently effervescent; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bk2—40 to 71 inches; light yellowish brown (10YR 6/4) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; few fine roots throughout; 2 percent fine and medium distinct threadlike carbonate masses throughout; 1 percent gravel; violently effervescent; moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 69 to 74 degrees F.

*Depth to diagnostic features:* 8 to 18 inches to the argillic horizon; 0 inches to the mollic epipedon; 12 to 30 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 24 to 40 inches

*Thickness of the mollic epipedon:* 8 to 20 inches

*Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 25 to 60 percent, with less than 35 percent fine sand and coarser

*Rock fragment content:* 0 to 10 percent

*A horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 4 or 5 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Clay content:* 15 to 25 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 12.8 to 21.2 meq/100 grams

*Bt horizon(s)/(a Btk horizon is present in some pedons):*

*Hue:* 10YR or 7.5YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 3 or 4

*Texture:* sandy clay loam, clay loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 0 to 6 percent fine gravel and 0 to 4 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 16.2 to 28.2 meq/100 grams

*Bk1 horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* sandy loam, loam, sandy clay loam

*Clay content:* 15 to 27 percent

*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Calcium carbonate equivalent:* 1 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 10.9 to 21.7 meq/100 grams

*Bk2 horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 3 or 4

*Texture:* fine sandy loam, loam, very fine sandy loam

*Clay content:* 10 to 26 percent

*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Calcium carbonate equivalent:* 1 to 10 percent

*Gypsum content:* 0 to 1 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Sodium adsorption ratio:* 0 to 2

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 7.6 to 20.5 meq/100 grams

## Stout Series

*Map unit(s):* VD

*Depth class:* shallow

*Drainage class:* somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* hills

*Position on landform:* head slope, interfluvium

*Parent material:* slope alluvium and residuum weathered from sandstone

*Elevation:* 7,500 to 8,500 feet (2,286 to 2,591 meters)

*Slope:* 1 to 9 percent

*Climatic data:*

*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)

*Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)

*Frost-free period:* 75 to 100 days

*Taxonomic class:* Loamy, mixed, superactive, frigid Lithic Haplustepts

### Typical Pedon

*Map unit in which located:* Dargol-Stout-Vamer complex, 1 to 9 percent slopes

*Location in survey area:* Stout gravelly sandy loam; in an area of Dargol-Stout-Vamer complex, 1 to 9 percent slopes; in forest land; about 1.5 miles north of the Wooton Exit of I-25 and 0.4 mile south of Coalbank Canyon on the Crazy French Ranch, T. 34 S., R. 63 W.; USGS Fishers Peak topographic quadrangle; 37 degrees, 2 minutes, 26.20 seconds north latitude; and 104 degrees, 29 minutes, 32.90 seconds west longitude; UTM 545,133 meters E., 4,099,497 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* 10 percent gravel, 5 percent cobbles, and 2 percent stones

Oi—0 to 1 inch; slightly decomposed plant material; dominantly needles and twigs.

A—1 inch to 5 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; very friable, soft, slightly sticky and slightly plastic; 15 percent gravel and 5 percent cobbles; noneffervescent; slightly acid (pH 6.2); abrupt wavy boundary.

Bw—5 to 16 inches; yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; very friable, soft, slightly sticky and slightly plastic; 15 percent gravel and 5 percent cobbles; noneffervescent; neutral (pH 6.6); clear wavy boundary.

R—16 to 60 inches; unweathered bedrock; indurated; hard fractured sandstone.



### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some parts from April through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 54 to 57 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 0 to 3 inches to the ochric epipedon; 10 to 20 inches to lithic contact; 5 to 6 inches to the cambic horizon

*Particle-size control section (weighted average):*

*Clay content:* 5 to 15 percent

*Sand content:* 40 to 65 percent

*Rock fragment content:* 5 to 30 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 5 to 15 percent

*Rock fragment content:* 3 to 10 percent fine gravel, 10 to 15 percent medium and coarse gravel, and 2 to 5 percent cobbles

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 4.6 to 12.8 meq/100 grams

*Bw horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* gravelly sandy loam, cobbly sandy loam

*Clay content:* 5 to 18 percent

*Rock fragment content:* 4 to 5 percent fine gravel, 8 to 15 percent medium and coarse gravel, and 3 to 10 percent cobbles

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 4.1 to 14.7 meq/100 grams

## Tecolote Series

*Map unit(s):* TeE

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* fans

*Position on landform:* rise

*Parent material:* colluvium and alluvium derived from sandstone

*Elevation:* 7,000 to 8,200 feet (2,134 to 2,499 meters)

*Slope:* 5 to 15 percent

*Climatic data:*

*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)

*Mean annual air temperature:* 42 to 44 degrees F. (6.0 to 7.0 degrees C.)

*Frost-free period:* 70 to 100 days



*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Typic Haplustalfs

### Typical Pedon

*Map unit in which located:* Tecolote very cobbly sandy loam, 5 to 15 percent slopes, very stony

*Location in survey area:* Tecolote very cobble sandy loam; in an area of Tecolote very cobbly sandy loam, 5 to 15 percent slopes, very stony; in forest land; about 1,300 feet west and 800 feet south of the northeast corner of section 30, T. 32 S., R. 68 W.; USGS Vigil topographic quadrangle; 37 degrees, 14 minutes, 0.60 seconds north latitude; and 105 degrees, 1 minute, 56.00 seconds west longitude; UTM 497,142 meters E., 4,120,776 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

Oi—0 to 1 inch; slightly decomposed plant material; dominantly pine needles and twigs.

A—1 inch to 5 inches; brown (7.5YR 4/2) very cobbly sandy loam, very dark grayish brown (10YR 3/2) and very dark grayish brown (10YR 3/2) crushed, moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; many fine roots throughout; 5 percent stones, 15 percent gravel, and 20 percent cobbles; noneffervescent; neutral (pH 7.0); clear smooth boundary.

E—5 to 15 inches; reddish gray (5YR 5/2) very cobbly sandy loam, dark reddish gray (5YR 4/2) and dark reddish gray (5YR 4/2) crushed, moist; moderate fine and medium granular structure; very friable, soft, nonsticky and nonplastic; many fine roots throughout; 15 percent gravel and 35 percent cobbles; noneffervescent; neutral (pH 6.8); gradual smooth boundary.

B/E—15 to 25 inches; reddish brown (5YR 5/3) very cobbly sandy loam, reddish brown (5YR 4/3) and reddish brown (5YR 4/3) crushed, moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and nonplastic; few fine roots throughout; 20 percent gravel and 30 percent cobbles; noneffervescent; slightly acid (pH 6.4); gradual smooth boundary.

Bt—25 to 61 inches; reddish brown (5YR 5/4) very cobbly sandy clay loam, dark reddish brown (5YR 3/4) and reddish brown (5YR 4/3) crushed, moist; moderate medium subangular blocky structure; friable, hard, moderately sticky and moderately plastic; 20 percent cobbles and 30 percent gravel; noneffervescent; slightly acid (pH 6.4).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some parts from April through August

*Mean annual soil temperature:* 43 to 46 degrees F.

*Mean summer soil temperature:* 56 to 60 degrees F.

*Depth to diagnostic features:* 4 to 6 inches to the albic horizon; 15 to 25 inches to the argillic horizon

*Depth to the base of the argillic horizon:* 40 to 60 inches or more

*Depth to the B/E horizon:* 10 to 24 inches

*Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Rock fragment content:* 35 to 60 percent

*A horizon(s):*

*Hue:* 7.5YR or 5YR

*Value:* 5 or 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 5 to 20 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 10 to 15 percent medium and coarse gravel, 15 to 30 percent cobbles, and 5 to 5 percent stones

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 4.8 to 17.0 meq/100 grams

E horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 or 7 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Texture:* very cobbly sandy loam, very cobbly fine sandy loam

*Clay content:* 5 to 20 percent

*Rock fragment content:* 5 to 5 percent fine gravel, 10 to 15 percent medium and coarse gravel, 20 to 35 percent cobbles, and 0 to 5 percent stones

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 4.6 to 16.6 meq/100 grams

B/E horizon(s):

*Hue:* 5YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* very cobbly sandy loam, very cobbly sandy clay loam

*Clay content:* 5 to 25 percent

*Rock fragment content:* 5 to 10 percent fine gravel, 15 to 15 percent medium and coarse gravel, 15 to 30 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 0.5 to 1.0 percent

*Base saturation:* 70 to 100 percent

*Cation-exchange capacity:* 4.6 to 20.3 meq/100 grams

Bt horizon(s):

*Hue:* 5YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Clay content:* 20 to 35 percent

*Rock fragment content:* 10 to 10 percent fine gravel, 10 to 20 percent medium and coarse gravel, 15 to 25 percent cobbles, and 0 to 5 percent stones

*Reaction:* slightly acid or neutral

*Base saturation:* 70 to 100 percent

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 14.2 to 26.7 meq/100 grams

## Tercio Series

*Map unit(s):* MG

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* .001 to .06 in./hr. (very slow)

*Landform:* mountain slopes

*Position on landform:* mountainflank

*Parent material:* colluvium and residuum weathered from shale and siltstone

*Elevation:* 8,000 to 10,000 feet (2,438 to 3,048 meters)

*Slope:* 15 to 40 percent

*Climatic data:*

*Mean annual precipitation:* 20 to 26 inches (508 to 660 millimeters)

*Mean annual air temperature:* 38 to 42 degrees F. (3.5 to 5.6 degrees C.)

*Frost-free period:* 40 to 60 days

*Taxonomic class:* Fine, smectitic Ustic Glossocryalfs

**Typical Pedon**

*Map unit in which located:* Tercio-Graneros complex, 15 to 40 percent slopes

*Location in survey area:* Tercio cobbly loam; in an area of Tercio-Graneros complex, 15 to 40 percent slopes; in forest land; in an unsectionalized area about 1,500 feet west and 250 feet south of a drainage of Rincon Creek, T. 34 S., R. 68 W.; USGS Torres topographic quadrangle; 37 degrees, 0 minutes, 43.80 seconds north latitude; and 105 degrees, 2 minutes, 25.30 seconds west longitude; UTM 496,408 meters E., 4,096,224 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 1 percent cobbles

Oi—0 to 2 inches; slightly decomposed plant material; dense mat of needles and twigs.

E—2 to 10 inches; very pale brown (10YR 7/3) cobbly loam, brown (10YR 4/3) moist; moderate fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; few medium and coarse roots throughout; 5 percent gravel and 10 percent cobbles; strongly acid (pH 5.5); clear smooth boundary.

E/B—10 to 16 inches; 60 percent very pale brown (10YR 7/3) very cobbly loam, brown (10YR 4/3) moist, and 40 percent light yellowish brown (10YR 6/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; firm, hard, moderately sticky and moderately plastic; few medium and coarse roots throughout; 15 percent gravel and 30 percent cobbles; moderately acid (pH 6.0); clear smooth boundary.

Bt1—16 to 30 inches; light yellowish brown (10YR 6/4) gravelly clay, dark yellowish brown (10YR 4/4) moist; strong coarse angular blocky structure; very firm, extremely hard, very sticky and very plastic; few coarse roots throughout; 55 percent prominent clay films on all faces of peds; 5 percent cobbles and 15 percent gravel; moderately acid (pH 5.9); gradual smooth boundary.

Bt2—30 to 38 inches; yellowish brown (10YR 5/4) cobbly clay, brown (10YR 4/3) moist; 10 percent fine distinct yellowish brown (10YR 5/6) mottles; strong medium angular blocky structure; very firm, extremely hard, very sticky and very plastic; few coarse roots throughout; 45 percent prominent clay films on all faces of peds; 10 percent gravel and 20 percent cobbles; strongly acid (pH 5.4); clear wavy boundary.

BC—38 to 70 inches; yellowish brown (10YR 5/4) cobbly clay loam, brown (10YR 4/3) moist; 25 percent medium distinct yellowish brown (10YR 5/6) mottles; moderate fine subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few medium roots throughout; 20 percent cobbles and 15 percent shale parachanners; strongly acid (pH 5.2).

**Range in Characteristics**

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* udic

*Seasonal pattern:* moist from March through August

*Mean annual soil temperature:* 39 to 43 degrees F.

*Mean summer soil temperature:* 45 to 47 degrees F.

*Depth to diagnostic features:* 6 to 10 inches to the glossic horizon; 0 to 2 inches to the albic horizon; 10 to 20 inches to the argillic horizon

*Depth to redox concentrations:* 26 to 40 inches

*Thickness of the argillic horizon:* 20 to 40 inches

*Particle-size control section (weighted average):*

*Clay content:* 40 to 50 percent

*Sand content:* 20 to 30 percent

*Rock fragment content:* 20 to 30 percent

An A horizon is present in some pedons.

E horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 or 7 dry, 4 or 5 moist

*Chroma:* 2 or 3

*Clay content:* 18 to 27 percent

*Rock fragment content:* 2 to 13 percent fine gravel, 3 to 5 percent medium and coarse gravel, 10 to 15 percent cobbles, and 0 to 2 percent stones

*Reaction:* strongly acid or moderately acid (pH 5.1 to 6.0)

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 10.2 to 18.3 meq/100 grams

E/B horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 6 or 7 dry, 4 or 5 moist (E part); 5 or 6 dry, 4 or 5 moist (B part)

*Chroma:* 2 or 3 (E part), 4 to 6 (B part)

*Texture:* cobbly silty clay loam, very cobbly clay loam, cobbly clay loam, very cobbly loam (E)

*Clay content:* 27 to 40 percent

*Rock fragment content:* 25 to 50 percent total: 0 to 5 percent fine gravel, 5 to 10 percent medium and coarse gravel, and 20 to 35 percent cobbles

*Reaction:* moderately acid or slightly acid

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 4.8 to 20.4 meq/100 grams

Bt horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 4 to 6

*Texture:* cobbly clay, gravelly clay

*Clay content:* 40 to 55 percent

*Rock fragment content:* 15 to 35 percent total: 0 to 10 percent fine gravel, 3 to 15 percent medium and coarse gravel, 3 to 20 percent cobbles, and 0 to 3 percent stones

*Reaction:* moderately acid or slightly acid

*Organic matter content:* 0.0 to 0.5 percent

*Base saturation:* 50 to 80 percent

*Cation-exchange capacity:* 6.7 to 26.8 meq/100 grams

BC horizon(s):

*Hue:* 7.5YR to 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 4 to 6

*Texture:* cobbly clay loam, cobbly clay, gravelly clay

*Clay content:* 35 to 55 percent

*Rock fragment content:* 0 to 3 percent fine gravel, 0 to 10 percent medium and coarse gravel, 15 to 20 percent cobbles, and 0 to 2 percent stones

*Parafragment content:* 15 to 25 percent shale  
*Reaction:* strongly acid or moderately acid  
*Organic matter content:* 0.0 to 0.5 percent  
*Base saturation:* 50 to 80 percent  
*Cation-exchange capacity:* 6.0 to 26.8 meq/100 grams

## Torreón Series

*Map unit(s):* TsE, CpT, TF, TL, To, ToE, ToD  
*Local phase(s):* stony  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* .06 to 0.2 in./hr. (slow)  
*Landform:* fan remnants, fans, lava plateaus  
*Position on landform:* tread, rise  
*Parent material:* alluvium and residuum weathered from basalt  
*Elevation:* 5,000 to 7,500 feet (1,524 to 2,286 meters)  
*Slope:* 0 to 20 percent  
*Climatic data:*  
*Mean annual precipitation:* 14 to 17 inches (356 to 432 millimeters)  
*Mean annual air temperature:* 49 to 53 degrees F. (9.0 to 12.0 degrees C.)  
*Frost-free period:* 110 to 150 days

*Taxonomic class:* Fine, smectitic, mesic Calcic Argiustolls

### Typical Pedon

*Map unit in which located:* Torreón stony clay loam, 5 to 20 percent slopes  
*Location in survey area:* Torreón stony clay loam; in an area of Torreón stony clay loam, 5 to 20 percent slopes; in rangeland; about 1,800 feet east and 1,800 feet south of the northwest corner of section 3, T. 35 S., R. 61 W.; USGS Abeyta topographic quadrangle; 37 degrees, 1 minute, 32.70 seconds north latitude; and 104 degrees, 13 minutes, 22.40 seconds west longitude; UTM 569,122 meters E., 4,098,010 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* about 20 percent cobbles and 5 percent stones

A—0 to 7 inches; grayish brown (10YR 5/2) stony clay loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; friable, hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; 10 percent stones and 10 percent cobbles; noneffervescent; neutral (pH 7.1); clear smooth boundary.

BA—7 to 10 inches; grayish brown (10YR 5/2) clay loam, dark brown (10YR 3/3) moist; moderate very fine subangular blocky structure; firm, hard, moderately sticky and moderately plastic; common very fine and fine roots throughout; noneffervescent; neutral (pH 7.1); clear smooth boundary.

Bt—10 to 29 inches; dark grayish brown (10YR 4/2) clay, brown (10YR 4/3) moist; strong medium subangular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; common very fine and fine roots throughout; 35 percent prominent clay films on all faces of peds; 5 percent gravel; noneffervescent; neutral (pH 7.2); gradual wavy boundary.

Btk—29 to 37 inches; brown (10YR 5/3) clay, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; very firm, extremely hard, moderately sticky and moderately plastic; few fine roots throughout; 25 percent distinct clay films on all faces of peds; 1 percent fine irregular carbonate masses

throughout; 5 percent gravel; noneffervescent (3 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual wavy boundary.  
 Bk—37 to 60 inches; pale brown (10YR 6/3) clay loam, grayish brown (10YR 5/2) moist; weak medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; 5 percent coarse irregular carbonate masses throughout; 10 percent cobbles and 4 percent gravel; violently effervescent (20 percent calcium carbonate equivalent); moderately alkaline (pH 8.3).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some parts from April through August

*Mean annual soil temperature:* 50 to 54 degrees F.

*Mean summer soil temperature:* 68 to 70 degrees F.

*Depth to diagnostic features:* 27 to 40 inches to the calcic horizon; 2 to 16 inches to the argillic horizon; 0 inches to the mollic epipedon

*Thickness of the argillic horizon:* 20 to 35 inches

*Thickness of the mollic horizon:* 7 to 16 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 40 to 50 percent

*Rock fragment content:* 5 to 20 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 2 moist

*Chroma:* 2 or 3

*Texture:* clay loam, stony clay loam, silt loam

*Clay content:* 18 to 40 percent

*Rock fragment content:* 0 to 4 percent fine gravel, 0 to 8 percent medium and coarse gravel, 0 to 13 percent cobbles, and 0 to 15 percent stones

*Reaction:* neutral

*Organic matter content:* 3.0 to 5.0 percent

*Cation-exchange capacity:* 18.5 to 43.6 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 3 or 4 moist

*Chroma:* 2 through 5

*Texture:* silty clay, silty clay loam, clay

*Clay content:* 35 to 55 percent

*Rock fragment content:* 0 to 6 percent fine gravel, 0 to 8 percent medium and coarse gravel, and 0 to 3 percent cobbles

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 3.0 percent

*Cation-exchange capacity:* 18.2 to 44.6 meq/100 grams

#### *Btk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 through 5

*Texture:* silty clay, clay, silty clay loam

*Clay content:* 35 to 55 percent



*Rock fragment content:* 5 to 15 percent total: 1 to 6 percent fine gravel, 3 to 7 percent medium and coarse gravel, 1 to 10 percent cobbles, and 0 to 1 percent stones  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.0 to 2.0 percent  
*Cation-exchange capacity:* 6.0 to 42.4 meq/100 grams

Bk horizon(s)/(BCK in some pedons):

*Hue:* 7.5YR or 10YR  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 3 to 6  
*Texture of the fine-earth fraction:* clay loam, silty clay loam, clay  
*Clay content:* 27 to 50 percent  
*Rock fragment content:* 15 to 35 percent total: 0 to 5 percent fine gravel, 5 to 10 percent medium and coarse gravel, 5 to 20 percent cobbles, and 0 to 5 percent stones  
*Calcium carbonate equivalent:* 15 to 30 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Reaction:* pH 7.4 to 8.4  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 4.8 to 20.4 meq/100 grams

## Travessilla Series

*Map unit(s):* TsD, TsF, VT  
*Depth class:* very shallow and shallow  
*Drainage class:* well drained  
*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)  
*Landform:* scarps  
*Position on landform:* crest, head slope  
*Parent material:* slope alluvium and residuum weathered from sandstone  
*Elevation:* 4,700 to 6,000 feet (1,372 to 1,829 meters)  
*Slope:* 1 to 45 percent  
*Climatic data:*  
*Mean annual precipitation:* 12 to 16 inches (305 to 406 millimeters)  
*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)  
*Frost-free period:* 125 to 155 days  
*Taxonomic class:* Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents

### Typical Pedon

*Map unit in which located:* Travessilla-Rock outcrop complex, 1 to 9 percent slopes  
*Location in survey area:* Travessilla sandy loam; in an area of Travessilla-Rock outcrop complex, 1 to 9 percent slopes; in rangeland; about 600 feet south and 1,650 feet west of northeast corner of section 29, T. 30 S., R. 58 W.; USGS Rock Crossing topographic quadrangle; 37 degrees, 24 minutes, 33.00 seconds north latitude; and 103 degrees, 55 minutes, 19.50 seconds west longitude; UTM 595,394 meters E., 4,140,797 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)  
*Surface fragments:* about 7 percent gravel



- A—0 to 5 inches; brown (10YR 5/3), sandy loam, brown (10YR 4/3), moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; many very fine and fine roots throughout; very slightly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- AC—5 to 11 inches; yellowish brown (10YR 5/4), sandy loam, brown (10YR 4/3) and brown (10YR 5/3), moist; weak coarse subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; common very fine and fine roots throughout; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Bk—11 to 14 inches; very pale brown (10YR 7/3), sandy loam, brown (10YR 5/3), moist; massive; very friable, slightly hard, nonsticky and nonplastic; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.
- R—14 to 60 inches; unweathered bedrock; indurated; hard Dakota sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 55 degrees F.

*Mean summer soil temperature:* 70 to 75 degrees F.

*Depth to restrictive feature:* 6 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 6 to 20 inches to lithic contact; 0 inches to the ochric epipedon

#### *Particle-size control section (weighted average):*

*Clay content:* 5 to 18 percent

*Sand content:* 45 to 70 percent

*Rock fragment content:* 0 to 35 percent

#### *A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 2 or 3

*Texture:* sandy loam

*Clay content:* 10 to 18 percent

*Rock fragment content:* 0 to 7 percent fine gravel and 0 to 8 percent medium and coarse gravel

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 8.6 to 15.5 meq/100 grams

#### *Bk horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* loam, sandy loam

*Clay content:* 5 to 18 percent

*Rock fragment content:* 0 to 6 percent fine gravel, 0 to 8 percent medium and coarse gravel, and 0 to 1 percent cobbles

*Calcium carbonate equivalent:* 1 to 15 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 4.1 to 14.7 meq/100 grams

## Trementina Series

*Map unit(s):* TnA, TbA, TnB

*Local phase(s):* cool, warm

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* drainageways, flood plains, terraces

*Position on landform:* dip, tread

*Parent material:* silty alluvium derived from sandstone and shale

*Elevation:* 4,500 to 7,500 feet (1,372 to 2,286 meters)

*Slope:* 0 to 2 percent

*Climatic data:*

*Mean annual precipitation:* 13 to 18 inches (331 to 457 millimeters)

*Mean annual air temperature:* 48 to 53 degrees F. (9.0 to 11.7 degrees C.)

*Frost-free period:* 120 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Cumulic Haplustolls

### Typical Pedon

*Map unit in which located:* Trementina silt loam, dry, 0 to 2 percent slopes

*Location in survey area:* Trementina silt loam; in an area of Trementina silt loam, dry, 0 to 2 percent slopes; in rangeland; about 1,950 feet east and 2,000 feet south of the northwest corner of section 12, T. 29 S., R. 54 W.; USGS Lost Canyon topographic quadrangle; 37 degrees, 32 minutes, 13.00 seconds north latitude; and 103 degrees, 24 minutes, 51.50 seconds west longitude; UTM 640,096 meters E., 4,155,625 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.2); clear smooth boundary.
- A2—6 to 15 inches; very dark grayish brown (10YR 3/2) silt loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; very friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; neutral (pH 7.2); clear smooth boundary.
- Bw1—15 to 22 inches; dark grayish brown (10YR 4/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many very fine and fine roots throughout; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Bw2—22 to 30 inches; brown (10YR 4/3) silty clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common very fine and fine roots throughout; strongly effervescent; moderately alkaline (pH 8.2); clear smooth boundary.
- Bk1—30 to 44 inches; brown (10YR 4/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; few very fine and fine roots throughout; 10 percent medium threadlike carbonate masses throughout; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.
- Bk2—44 to 65 inches; light yellowish brown (10YR 6/4) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; very friable, slightly hard, slightly sticky and slightly plastic; few very fine and fine roots throughout; 5 percent fine threadlike carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.4).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some parts from April through June, moist intermittently in July and August

*Mean annual soil temperature:* 49 to 54 degrees F.

*Mean summer soil temperature:* 68 to 72 degrees F.

*Depth to diagnostic features:* 0 inches to the mollic epipedon; 15 to 30 inches to secondary carbonates

*Thickness of the mollic epipedon:* 20 to 60 inches

Some pedons have buried A and Bw horizons.

*Particle-size control section (weighted average):*

*Clay content:* 25 to 33 percent

*Sand content:* 5 to 15 percent

*Rock fragment content:* 0 to 10 percent

*A horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 1 or 2

*Texture:* silty clay loam, silt loam

*Clay content:* 20 to 35 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 2.0 to 5.0 percent

*Cation-exchange capacity:* 17.0 to 29.3 meq/100 grams

*Bw horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 3 to 5 dry; 2 or 3 moist

*Chroma:* 1 or 2

*Texture:* silty clay loam

*Clay content:* 27 to 35 percent

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* pH 6.6 to 8.4

*Organic matter content:* 0.5 to 4.0 percent

*Cation-exchange capacity:* 21.2 to 29.0 meq/100 grams

*Bw horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 3 to 5 dry, 2 or 3 moist

*Chroma:* 1 to 3

*Texture:* silty clay loam, silt loam

*Clay content:* 25 to 35 percent

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* neutral to moderately alkaline

*Organic matter content:* 1.0 to 4.0 percent

*Cation-exchange capacity:* 19.7 to 29.0 meq/100 grams

*Bk horizon(s):*

*Hue:* 7.5YR to 2.5Y

*Value:* 4 to 6 dry, 3 or 5 moist

*Chroma:* 1 to 3

*Texture:* silty clay loam, silt loam, very fine sandy loam

*Clay content:* 15 to 35 percent

*Calcium carbonate equivalent:* 1 to 10 percent  
*Electrical conductivity:* 0 to 4 mmhos/cm  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.5 to 2.0 percent  
*Cation-exchange capacity:* 12.5 to 28.2 meq/100 grams

## Trujillo Series

*Map unit(s):* TgD, TgE, TmD, LST  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)  
*Landform:* drainageways, fans  
*Position on landform:* base slope, rise  
*Parent material:* alluvium derived from coarse sandstone  
*Elevation:* 6,800 to 8,000 feet (2,073 to 2,438 meters)  
*Slope:* 3 to 25 percent  
*Climatic data:*  
     *Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)  
     *Mean annual air temperature:* 43 to 46 degrees F. (6.0 to 8.0 degrees C.)  
     *Frost-free period:* 70 to 100 days  
*Taxonomic class:* Fine-loamy, mixed, superactive, frigid Typic Argiustolls

### Typical Pedon

*Map unit in which located:* Trujillo loam, 3 to 9 percent slopes  
*Location in survey area:* Trujillo loam; in an area of Trujillo loam, 3 to 9 percent slopes; in rangeland; about 1,150 feet east and 800 feet north of the southwest corner of section 23, T. 31 S., R. 66 W.; USGS Gulnare topographic quadrangle; 37 degrees, 19 minutes, 32.00 seconds north latitude; and 104 degrees, 45 minutes, 17.00 seconds west longitude; UTM 521,725 meters E., 4,131,022 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 9 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; noneffervescent; neutral (pH 6.6); clear smooth boundary.

Bt1—9 to 13 inches; dark grayish brown (10YR 4/2) loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; 50 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 6.8); clear smooth boundary.

Bt2—13 to 20 inches; dark grayish brown (10YR 4/2) clay loam, brown (10YR 4/3) moist and crushed, moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; firm, hard, slightly sticky and slightly plastic; many very fine and fine roots; 45 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 6.8); clear smooth boundary.

Bt3—20 to 36 inches; brown (10YR 5/3) sandy clay loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; common very fine and fine roots; 25 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

C—36 to 58 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; friable, slightly hard, slightly sticky and slightly

plastic; few very fine roots; noneffervescent; slightly alkaline (pH 7.4); clear smooth boundary.

Bk—58 to 70 inches; yellowish brown (10YR 5/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; massive; friable, slightly hard, nonsticky and nonplastic; few very fine roots; 1 percent fine irregular carbonate threads throughout; slightly effervescent; slightly alkaline (pH 7.5).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist in some parts from April through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 60 to 63 degrees F.

*Depth to diagnostic features:* 7 to 10 inches to the argillic horizon; 0 inches to the mollic epipedon; 40 to 65 inches to secondary carbonates

*Thickness of the mollic epipedon:* 7 to 15 inches

*Thickness of the Bt horizons:* 23 to 40 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Sand content:* 40 to 60 percent

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 7.5YR to 10YR

*Value:* 3 or 4 dry, 2 or 3 moist

*Chroma:* 2 or 3

*Texture:* loam, sandy loam

*Clay content:* 10 to 20 percent

*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Reaction:* slightly acid or neutral

*Organic matter content:* 2.0 to 4.0 percent

*Cation-exchange capacity:* 9.1 to 21.4 meq/100 grams

#### *Bt horizon(s):*

*Hue:* 7.5YR to 10YR

*Value:* 4 to 6 dry, 3 to 5 moist

*Chroma:* 2 to 4

*Texture:* clay loam, sandy clay loam, loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 0 to 5 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Reaction:* slightly acid to neutral

*Base saturation:* 85 to 100 percent

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 15.1 to 28.2 meq/100 grams

#### *C & BC horizon(s):*

*Hue:* 7.5YR to 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* loam, sandy loam, sandy clay loam, fine sandy loam

*Clay content:* 15 to 27 percent

*Rock fragment content:* 0 to 7 percent fine gravel, 0 to 7 percent medium and coarse gravel, and 0 to 1 percent cobbles

*Reaction:* slightly acid to neutral

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 10.9 to 21.7 meq/100 grams

Bk horizon(s):

*Hue:* 7.5YR to 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* sandy clay loam, fine sandy loam, sandy loam

*Clay content:* 15 to 27 percent

*Rock fragment content:* 0 to 7 percent fine gravel, 0 to 7 percent medium and coarse gravel, and 0 to 1 percent cobbles

*Calcium carbonate equivalent:* 0 to 3 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Sodium adsorption ratio:* 0 to 2

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 10.9 to 21.7 meq/100 grams

## Valent Series

*Map unit(s):* VtC

*Depth class:* very deep

*Drainage class:* excessively drained

*Slowest permeability:* 6.0 to 20 in./hr. (rapid)

*Landform:* dunes, hills

*Position on landform:* head slope, crest

*Parent material:* eolian sands

*Elevation:* 5,000 to 5,700 feet (1,524 to 1,737 meters)

*Slope:* 2 to 8 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Mixed, mesic Ustic Torripsamments

### Typical Pedon

*Map unit in which located:* Valent fine sand, 2 to 8 percent slopes

*Location in survey area:* Valent fine sand; in an area of Valent fine sand, 2 to 8 percent slopes; in rangeland; about 850 feet north and 800 feet east of the southwest corner of section 21, T. 32 S., R. 51 W.; USGS Pintada Creek topographic quadrangle; 37 degrees, 15 minutes, 8.40 seconds north latitude; and 103 degrees, 9 minutes, 11.70 seconds west longitude; UTM 663,779 meters E., 4,124,462 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 5 inches; light brownish gray (10YR 6/2) fine sand, brown (10YR 4/3) moist; single grain; loose, soft, nonsticky and nonplastic; noneffervescent; neutral (pH 7.2); clear smooth boundary.



C—5 to 65 inches; light yellowish brown (10YR 6/4) fine sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, soft, nonsticky and nonplastic; noneffervescent; neutral (pH 7.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to diagnostic features:* 40 to 60 inches to secondary carbonates; 0 inches to the ochric epipedon

*Particle-size control section (weighted average):*

*Clay content:* 0 to 10 percent

*Sand content:* 70 to 95 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 2 to 6 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 1.8 to 5.0 meq/100 grams

*C horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* fine sand, loamy fine sand, loamy sand

*Clay content:* 2 to 8 percent

*Rock fragment content:* 0 to 3 percent fine gravel

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 1.4 to 6.1 meq/100 grams

## Vamer Series

*Map unit(s):* VD, DFV

*Depth class:* shallow

*Drainage class:* well drained

*Slowest permeability:* .06 to 0.2 in./hr. (slow)

*Landform:* hills

*Position on landform:* interfluve, base slope, head slope

*Parent material:* slope alluvium and colluvium over residuum derived from shale and/or siltstone or sandstone

*Elevation:* 7,500 to 9,000 feet (2,286 to 2,743 meters)

*Slope:* 1 to 40 percent

*Climatic data:*

*Mean annual precipitation:* 17 to 22 inches (432 to 559 millimeters)

*Mean annual air temperature:* 43 to 45 degrees F. (6.0 to 7.0 degrees C.)

*Frost-free period:* 70 to 100 days

*Taxonomic class:* Clayey, mixed, superactive, frigid Lithic Haplustalfs



### Typical Pedon

*Map unit in which located:* Dargol-Stout-Vamer complex, 1 to 9 percent slopes

*Location in survey area:* Vamer; in an area of Dargol-Stout-Vamer complex, 1 to 9 percent slopes; in forest land; about 0.8 mile north and 2,200 feet west of Mechum Cabin, just north of Alamosa Canyon, T. 34 S., R. 67 W.; USGS Tercio topographic quadrangle; 37 degrees, 2 minutes, 31.60 seconds north latitude; and 104 degrees, 54 minutes, 24.80 seconds west longitude; UTM 508,280 meters E., 4,099,548 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* about 2 percent cobbles and 1 percent stones

Oi—0 to 1 inch; slightly decomposed plant material, dominantly needles and twigs.

A—1 inch to 3 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; very friable, soft, nonsticky and slightly plastic; 5 percent gravel, 5 percent cobbles, and 2 percent stones; noneffervescent; slightly acid (pH 6.4); clear smooth boundary.

E—3 to 7 inches; very pale brown (10YR 7/3) fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 5 percent gravel, 3 percent cobbles, and 3 percent stones; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.

Bt—7 to 16 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) and (7.5YR 5/4) moist and crushed; 10 percent fine strong brown (7.5YR 5/8) iron concentrations; moderate medium prismatic structure, and strong medium subangular blocky structure; very firm, very hard, moderately sticky and moderately plastic; 50 percent prominent clay films on all faces of peds; 2 percent gravel and 5 percent cobbles; noneffervescent; neutral (pH 6.8); abrupt irregular boundary.

R—16 to 60 inches; unweathered bedrock; indurated; hard sandstone.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through August

*Mean annual soil temperature:* 44 to 47 degrees F.

*Mean summer soil temperature:* 56 to 59 degrees F.

*Depth to restrictive feature:* 10 to 20 inches to bedrock (lithic)

*Depth to diagnostic features:* 10 to 20 inches to lithic contact; 0 to 3 inches to albic materials; 5 to 8 inches to the argillic horizon

*Particle-size control section (weighted average):*

*Clay content:* 35 to 50 percent

*Sand content:* 15 to 35 percent

*Rock fragment content:* 5 to 25 percent

*A horizon(s):*

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 15 to 20 percent

*Rock fragment content:* 1 to 2 percent fine gravel, 3 to 4 percent medium and coarse gravel, 1 to 7 percent cobbles, and 0 to 2 percent stones

*Reaction:* slightly acid or neutral

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 11.0 to 17.7 meq/100 grams

**E horizon(s):***Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 2 or 3*Texture:* fine sandy loam, loam*Clay content:* 15 to 20 percent*Rock fragment content:* 1 to 4 percent fine gravel, 3 to 5 percent medium and coarse gravel, 0 to 4 percent cobbles, and 1 to 3 percent stones*Reaction:* slightly acid or neutral*Organic matter content:* 1.0 to 2.0 percent*Cation-exchange capacity:* 11.0 to 17.7 meq/100 grams**Bt horizon(s):***Hue:* 7.5YR or 10YR*Value:* 5 or 6 dry, 4 or 5 moist*Chroma:* 3 or 4*Texture:* clay, clay loam*Clay content:* 35 to 55 percent*Rock fragment content:* 0 to 2 percent fine gravel, 2 to 5 percent medium and coarse gravel, 3 to 7 percent cobbles, and 0 to 1 percent stones*Reaction:* slightly acid or neutral*Cation-exchange capacity:* 6.0 to 26.8 meq/100 grams**Villedry Series***Map unit(s):* VT, WV*Depth class:* moderately deep*Drainage class:* well drained*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)*Landform:* interfluvies, plains*Position on landform:* rise*Parent material:* loess over residuum weathered from sandstone*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)*Slope:* 1 to 8 percent*Climatic data:**Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)*Frost-free period:* 125 to 155 days*Taxonomic class:* Fine-silty, mixed, superactive, mesic Ustic Calciargids**Typical Pedon***Map unit in which located:* Almagre-Villedry silt loams, 1 to 4 percent slopes*Location in survey area:* Villedry silt loam; in an area of Almagre-Villedry silt loams, 1 to 4 percent slopes; in rangeland; about 1,100 feet east and 2,400 feet south of the northwest corner of section 4, T. 29 S., R. 60 W.; USGS Bates Lake topographic quadrangle; 37 degrees, 33 minutes, 3.00 seconds north latitude; and 104 degrees, 7 minutes, 42.90 seconds west longitude; UTM 576,974 meters E., 4,156,338 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 4 inches; grayish brown (10YR 5/2) silt loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure, and weak fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; slightly effervescent; slightly alkaline (pH 7.6); clear smooth boundary.

- BA—4 to 7 inches; brown (10YR 5/3) silt loam, brown (10YR 4/3) crushed, moist; moderate fine and medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; common very fine and fine roots; 35 percent faint clay films on all faces of peds; violently effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); clear smooth boundary.
- Bt—7 to 15 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky structure; firm, hard, slightly sticky and slightly plastic; common very fine and fine roots; 35 percent distinct clay films on all faces of peds; violently effervescent (9 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Btk—15 to 25 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; few very fine roots; 30 percent distinct clay films on all faces of peds; 10 percent medium distinct irregular carbonate masses throughout; 1 percent gravel; violently effervescent (16 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); gradual smooth boundary.
- Bk1—25 to 33 inches; pale brown (10YR 6/3) clay loam, brown (10YR 5/3) moist; massive; firm, hard, slightly sticky and slightly plastic; 5 percent patchy faint clay films on all faces of peds; 10 percent fine distinct irregular carbonate masses throughout; 7 percent gravel; violently effervescent (15 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt wavy boundary.
- 2Bk2—33 to 38 inches; very pale brown (10YR 8/3) gravelly loam, very pale brown (10YR 7/3) moist; massive; friable, hard, slightly sticky and slightly plastic; 70 percent very fine distinct irregular carbonate masses throughout; 25 percent gravel; violently effervescent (35 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt irregular boundary.
- R—38 to 60 inches; unweathered bedrock; indurated; hard Dakota sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Depth to diagnostic features:* 17 to 38 inches to the calcic horizon; 20 to 40 inches to lithic contact; 3 to 10 inches to the argillic horizon; 0 inches to the ochric epipedon, 0 to 8 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 15 to 30 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 25 to 35 percent

*Sand content:* 5 to 25 percent, with less than 15 percent fine sand and coarser

*Rock fragment content:* 0 to 15 percent in the A and Bt horizons; a thin layer of soft shale is present in some pedons above the sandstone bedrock

#### *A horizon(s):*

*Hue:* 10YR or 2.5Y

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 1 to 3

*Clay content:* 18 to 27 percent

*Rock fragment content:* 0 to 15 percent fine to coarse gravel

*Calcium carbonate equivalent:* 0 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 1.0 to 2.0 percent  
*Cation-exchange capacity:* 9.7 to 14.6 meq/100 grams

**BA horizon(s):**

*Hue:* 10YR or 2.5Y  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 2 or 3  
*Clay content:* 18 to 30 percent  
*Rock fragment content:* 0 to 15 percent fine to coarse gravel  
*Calcium carbonate equivalent:* 1 to 10 percent  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 1.0 to 2.0 percent  
*Cation-exchange capacity:* 9.7 to 16.2 meq/100 grams

**Bt & Btk horizon(s):**

*Hue:* 7.5YR to 2.5Y  
*Value:* 5 to 7 dry, 4 to 6 moist  
*Chroma:* 2 to 4  
*Texture:* silty clay loam  
*Clay content:* 27 to 35 percent  
*Sand content:* 5 to 25 percent with less than 15 percent fine sand or coarser  
*Silt content:* 45 to 70 percent  
*Rock fragment content:* 0 to 15 percent fine to coarse gravel  
*Calcium carbonate equivalent:* 1 to 10 percent (Bt)  
*Calcium carbonate equivalent:* 10 to 20 percent (Btk)  
*Sodium adsorption ratio:* 0 to 5 (Btk)  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.5 to 1.0 percent  
*Cation-exchange capacity:* 14.3 to 18.6 meq/100 grams

**2Bk horizon(s):**

*Hue:* 10YR or 2.5Y  
*Value:* 7 or 8 dry, 6 or 7 moist  
*Chroma:* 2 to 4  
*Texture:* gravelly loam, loam, silt loam  
*Clay content:* 18 to 30 percent  
*Rock fragment content:* 2 to 12 percent fine gravel, 3 to 21 percent medium and coarse gravel, and 0 to 2 percent cobbles  
*Calcium carbonate equivalent:* 15 to 40 percent  
*Gypsum content:* 0 to 2 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 0.5 percent  
*Cation-exchange capacity:* 9.1 to 15.8 meq/100 grams

## Villegreen Series

*Map unit(s):* WC

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* interfluvies, plains

*Position on landform:* rise

*Parent material:* loess over residuum weathered from sandstone

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 1 to 4 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Calcic Haplustalfs

### Typical Pedon

*Map unit in which located:* Plughat-Villegreen complex, 1 to 4 percent slopes

*Location in survey area:* Villegreen silt loam; in an area of Plughat-Villegreen complex, 1 to 4 percent slopes; in rangeland; near the center of section 1, T. 31 S., R. 52 W.; USGS Andrix topographic quadrangle; 37 degrees, 22 minutes, 27.30 seconds north latitude; and 103 degrees, 12 minutes, 24.00 seconds west longitude; UTM 658,786 meters E., 4,137,899 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 6 inches; grayish brown (10YR 5/2) loam, dark grayish brown (10YR 4/2) moist; weak very fine granular structure; very friable, soft, slightly sticky and slightly plastic; many very fine roots throughout; many very fine interstitial pores; noneffervescent; slightly alkaline (pH 7.8); clear smooth boundary.
- BA—6 to 9 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate very fine subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many very fine roots throughout; many fine interstitial pores; slightly effervescent (1 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); clear smooth boundary.
- Bt—9 to 15 inches; brown (10YR 4/3) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; firm, hard, slightly sticky and slightly plastic; many fine roots throughout and many very fine roots throughout; many fine interstitial pores; 45 percent distinct clay films on vertical faces of peds; violently effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Btk—15 to 24 inches; very pale brown (10YR 7/4) silty clay loam, light yellowish brown (10YR 6/4) moist; weak fine subangular blocky structure; friable, hard, moderately sticky and moderately plastic; many very fine roots throughout; many fine interstitial and tubular pores; 35 percent distinct clay films on vertical faces of peds; 2 percent fine distinct spherical carbonate masses throughout; 5 percent gravel; violently effervescent (14 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear wavy boundary.
- 2Bk—24 to 32 inches; white (10YR 8/1) channery loam, light gray (10YR 7/1) moist; massive; very friable, slightly hard, slightly sticky and slightly plastic; few very fine roots throughout; many fine discontinuous tubular pores; carbonate, finely disseminated throughout; 25 percent channers; violently effervescent (30 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear irregular boundary.
- R—32 to 60 inches; unweathered bedrock; indurated; hard Dakota sandstone.

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Depth to diagnostic features:* 17 to 32 inches to the calcic horizon; 20 to 40 inches to lithic contact; 3 to 9 inches to the argillic horizon; 0 inches to the ochric epipedon; 0 to 8 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 20 to 32 inches

*Particle-size control section (weighted average):*

*Clay content:* 28 to 35 percent

*Sand content:* 5 to 25 percent, with less than 15 percent fine sand or coarser

*Rock fragment content:* 0 to 15 percent

**A horizon(s):**

*Hue:* 10YR to 2.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 1 to 3

*Clay content:* 18 to 27 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 14.7 to 22.3 meq/100 grams

**Bt & Btk horizon(s):**

*Hue:* 7.5YR to 2.5Y

*Value:* 4 to 7 dry, 4 to 6 moist

*Chroma:* 2 to 4

*Texture:* silty clay loam, clay loam

*Clay content:* 28 to 35 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 21.2 to 27.5 meq/100 grams

**2Bk horizon(s):**

*Hue:* 10YR to 2.5YR

*Value:* 6 to 8 dry, 5 to 7 moist

*Chroma:* 1 to 6

*Texture:* clay loam, channery loam, loam

*Clay content:* 18 to 35 percent

*Rock fragment content:* 5 to 35 percent total: 5 to 30 percent gravel or channers and 0 to 5 percent cobbles or coarse channers

*Calcium carbonate equivalent:* 15 to 30 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 12.9 to 26.7 meq/100 grams

## **Vona Series**

*Map unit(s):* VB, VnC, VoB

*Local phase(s):* overblown

*Depth class:* very deep



*Drainage class:* somewhat excessively drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* hills, plains, ridges

*Position on landform:* side slope, crest, talf, base slope, head slope

*Parent material:* eolian deposits

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 0 to 6 percent

*Climatic data:*

*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 130 to 155 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, mesic Aridic Haplustalfs

### Typical Pedon

*Map unit in which located:* Vona sandy loam, 3 to 6 percent

*Location in survey area:* Vona sandy loam; in an area of Vona sandy loam, 3 to 6 percent slopes; in rangeland; about 1,100 feet west and 300 feet north of the southeast corner of section 13, T. 31 S., R. 51 W.; USGS Uteyville topographic quadrangle; 37 degrees, 20 minutes, 20.00 seconds north latitude; and 103 degrees, 5 minutes, 13.90 seconds west longitude; UTM 669,444 meters E., 4,134,196 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 5 inches; brown (10YR 4/3) sandy loam, dark brown (10YR 3/3) moist; moderate very fine granular structure; very friable, soft, nonsticky and nonplastic; few medium and coarse roots and many very fine roots; noneffervescent; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—5 to 12 inches; dark yellowish brown (10YR 4/4) sandy loam, dark yellowish brown (10YR 3/4) moist; moderate medium prismatic structure parting to weak medium subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; few medium and coarse roots and many very fine roots; 40 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—12 to 17 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; common medium and coarse roots and few very fine roots; 45 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bk1—17 to 38 inches; very pale brown (10YR 7/3) fine sandy loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; very friable, hard, nonsticky and nonplastic; few very fine to medium roots; 10 percent medium distinct carbonate masses throughout; strongly effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bk2—38 to 41 inches; very pale brown (10YR 8/2) sandy loam, pale brown (10YR 6/3) moist; massive; very friable, slightly hard, nonsticky and nonplastic; few very fine to medium roots; 20 percent coarse distinct carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bk3—41 to 68 inches; very pale brown (10YR 7/3) loamy sand, yellowish brown (10YR 5/4) moist; massive; very friable, loose, nonsticky and nonplastic; 2 percent



coarse distinct carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.4).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 3 to 14 inches to the argillic horizon; 0 inches to the ochric epipedon; 8 to 24 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 15 to 25 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 8 to 18 percent

*Sand content:* 50 to 85 percent

#### A horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* sandy loam, loamy sand

*Clay content:* 4 to 15 percent

*Rock fragment content:* 0 to 3 percent fine gravel

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 3.8 to 13.2 meq/100 grams

#### Bt horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 to 6 dry, 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* fine sandy loam, coarse sandy loam, sandy loam

*Clay content:* 10 to 18 percent

*Sand content:* 55 to 85 percent

*Rock fragment content:* 0 to 3 percent fine gravel

*Calcium carbonate equivalent:* 0 to 2 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 15.1 meq/100 grams

#### Bk1 horizon(s):

*Hue:* 10YR or 2.5Y

*Value:* 5 to 7 dry, 4 to 6 moist

*Chroma:* 3 or 4

*Texture:* sandy loam, fine sandy loam, loamy sand

*Clay content:* 3 to 18 percent

*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel

*Calcium carbonate equivalent:* 2 to 15 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Reaction:* moderately alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 2.6 to 12.5 meq/100 grams

## Vonid Series

*Map unit(s):* VoC

*Depth class:* very deep

*Drainage class:* somewhat excessively drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* hills, plains, ridges

*Position on landform:* side slope, head slope, rise

*Parent material:* eolian deposits

*Elevation:* 4,500 to 6,000 feet (1,372 to 1,829 meters)

*Slope:* 3 to 7 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, mesic Ustic Calciargids

### Typical Pedon

*Map unit in which located:* Vonid sandy loam, 3 to 7 percent slopes

*Location in survey area:* Vonid sandy loam; in an area of Vonid sandy loam, 3 to 7 percent slopes; in rangeland; about 500 feet west and 400 feet south of the northeast corner of section 32, T. 30 S., R. 63 W.; USGS Vega Corral topographic quadrangle; 37 degrees, 23 minutes, 21.30 seconds north latitude; and 104 degrees, 27 minutes, 56.00 seconds west longitude; UTM 547,304 meters E., 4,138,188 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 6 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; weak very fine granular structure; loose, soft, nonsticky and nonplastic; many very fine and fine roots; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—6 to 11 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) and dark yellowish brown (10YR 3/4) crushed, moist; weak medium subangular blocky structure, and weak fine granular structure; very friable, soft, nonsticky and nonplastic; common very fine and fine roots; 25 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.6); gradual smooth boundary.

Bt2—11 to 16 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) crushed, moist; weak medium prismatic structure parting to moderate medium subangular blocky structure; very friable, hard, slightly sticky and nonplastic; few very fine and fine roots; 45 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bk1—16 to 24 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) crushed, moist; moderate medium subangular blocky structure; friable, hard, nonsticky and nonplastic; 2 percent fine distinct threadlike carbonate masses throughout; strongly effervescent (2 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); abrupt smooth boundary.

Bk2—24 to 33 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) and yellowish brown (10YR 5/4) crushed, moist; weak medium subangular blocky structure; loose, slightly hard, nonsticky and nonplastic; 7 percent fine and medium distinct threadlike carbonate masses throughout; violently effervescent (8 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear wavy boundary.

Bk3—33 to 60 inches; pale brown (10YR 6/3) loamy sand, brown (10YR 4/3) and yellowish brown (10YR 5/4) crushed, moist; massive; loose, nonsticky and nonplastic; 1 percent fine faint threadlike carbonate masses throughout; violently effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.4).

#### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 20 to 30 inches to the calcic horizon; 5 to 7 inches to the argillic horizon; 0 inches to the ochric epipedon; 8 to 24 inches to secondary carbonates

*Depth to the base of the argillic horizon:* 14 to 38 inches

*Particle-size control section (weighted average):*

*Clay content:* 8 to 18 percent

*Sand content:* 52 to 80 percent, with more than 35 percent fine sand and coarser

*A horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 5 to 15 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 4.8 to 13.2 meq/100 grams

*Bt horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* sandy loam, fine sandy loam

*Clay content:* 10 to 18 percent

*Calcium carbonate equivalent:* 0 to 2 percent

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 15.1 meq/100 grams

*Bk horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* sandy loam, loamy sand

*Clay content:* 3 to 15 percent

*Calcium carbonate equivalent:* 5 to 10 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 2.6 to 12.5 meq/100 grams

## Wahatoya Series

*Map unit(s):* LW, AW

*Depth class:* moderately deep

*Drainage class:* well drained

*Slowest permeability:* 0.6 to 2.0 in./hr. (moderate)

*Landform:* hills

*Position on landform:* head slope, side slope

*Parent material:* colluvium and residuum weathered from sandstone

*Elevation:* 7,400 to 8,800 feet (2,256 to 2,683 meters)

*Slope:* 25 to 60 percent

*Climatic data:*

*Mean annual precipitation:* 18 to 24 inches (457 to 610 millimeters)

*Mean annual air temperature:* 42 to 45 degrees F. (5.6 to 7.0 degrees C.)

*Frost-free period:* 70 to 100 days

*Taxonomic class:* Loamy-skeletal, mixed, superactive, frigid Typic Haplustalfs

### Typical Pedon

*Map unit in which located:* Allens Park-Wahatoya complex, 30 to 60 percent slopes

*Location in survey area:* Wahatoya; in an area of Allens Park-Wahatoya complex, 30 to 60 percent slopes; in forest land; about 1,400 feet west and 1,450 feet south of the northeast corner of section 2, T. 32 S., R. 67 W.; USGS Gulnare topographic quadrangle; 37 degrees, 17 minutes, 29.70 seconds north latitude; and 104 degrees, 51 minutes, 9.20 seconds west longitude; UTM 513,069 meters E., 4,127,230 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

*Surface fragments:* 5 percent stones

Oi—0 to 1 inch; slightly decomposed plant material; dominantly needles and twigs.

A—1 inch to 3 inches; dark grayish brown (10YR 4/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; many fine roots throughout; 10 percent gravel; noneffervescent; neutral (pH 6.8); abrupt smooth boundary.

E—3 to 9 inches; pale brown (10YR 6/3) broken face, sandy loam, brown (10YR 5/3) crushed and brown (10YR 4/3) broken face, moist; weak fine subangular blocky structure; very friable, soft, nonsticky and nonplastic; common fine roots throughout and common medium roots throughout; 10 percent gravel; noneffervescent; neutral (pH 6.8); abrupt smooth boundary.

Bt1—9 to 21 inches; brown (7.5YR 5/4) very cobbly sandy clay loam, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; firm, very hard, slightly sticky and slightly plastic; common fine roots throughout and common medium roots throughout; 50 percent distinct clay films on vertical faces of peds; 15 percent cobbles and 25 percent gravel; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.

Bt2—21 to 31 inches; brown (7.5YR 5/4) very cobbly sandy clay loam, brown (7.5YR 4/4) moist; moderate medium subangular blocky structure; firm, very hard, slightly sticky and slightly plastic; few fine roots throughout and few medium roots throughout; 50 percent distinct clay films on all faces of peds; 25 percent gravel and 30 percent cobbles; noneffervescent; slightly acid (pH 6.4); clear wavy boundary.

BC—31 to 36 inches; brown (7.5YR 5/4), very cobbly sandy clay loam, yellowish brown (10YR 5/4), moist; weak medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; 15 percent distinct clay films on vertical faces of peds; 20 percent gravel and 30 percent cobbles; noneffervescent; slightly acid (pH 6.4); abrupt wavy boundary.

R—36 to 72 inches; unweathered bedrock; indurated; hard fractured sandstone.

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* typic

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through June, moist intermittently in July and August

*Mean annual soil temperature:* 43 to 46 degrees F.

*Mean summer soil temperature:* 56 to 60 degrees F.

*Depth to restrictive feature:* 20 to 40 inches to bedrock (lithic)

*Depth to diagnostic features:* 20 to 40 inches to lithic contact; 3 to 11 inches to albic materials; 4 to 12 inches to the argillic horizon; 0 inches to the ochric epipedon

*Thickness of the argillic horizon:* 15 to 22 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 30 percent

*Sand content:* 40 to 70 percent

*Rock fragment content:* 35 to 60 percent

#### A horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry; 2 or 3 moist

*Chroma:* 1 to 3

*Clay content:* 10 to 20 percent

*Rock fragment content:* 5 to 15 percent total: 2 to 5 percent fine gravel, 3 to 8 percent medium and coarse gravel, and 0 to 2 percent cobbles

*Reaction:* medium acid to neutral

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 8.6 to 17.0 meq/100 grams

#### E horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 to 7 dry; 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* sandy loam, fine sandy loam

*Clay content:* 10 to 20 percent

*Rock fragment content:* 5 to 15 percent total: 2 to 5 percent fine gravel, 3 to 7 percent medium and coarse gravel, and 0 to 3 percent cobbles

*Reaction:* medium acid to neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 8.6 to 16.6 meq/100 grams

#### Bt horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 2 to 4

*Texture:* very cobbly sandy clay loam, very cobbly clay loam

*Clay content:* 20 to 35 percent

*Rock fragment content:* 35 to 60 percent total: 5 to 12 percent fine gravel, 10 to 20 percent medium and coarse gravel, 15 to 30 percent cobbles, and 0 to 8 percent stones

*Reaction:* medium acid to neutral

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 16.2 to 27.5 meq/100 grams

BC horizon(s):

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry; 4 or 5 moist

*Chroma:* 3 to 6

*Texture:* very cobbly sandy clay loam, very cobbly sandy loam

*Clay content:* 15 to 30 percent

*Rock fragment content:* 35 to 60 percent total: 5 to 8 percent fine gravel, 10 to 17 percent medium and coarse gravel, 20 to 30 percent cobbles, and 0 to 5 percent stones

*Reaction:* medium acid to neutral

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 10.9 to 23.9 meq/100 grams

## Wapiti Series

*Map unit(s):* FcB, Wa

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)

*Landform:* drainageways, plains, terraces

*Position on landform:* talf, dip, tread

*Parent material:* alluvium

*Elevation:* 5,000 to 6,000 feet (1,524 to 1,829 meters)

*Slope:* 0 to 3 percent

*Climatic data:*

*Mean annual precipitation:* 13 to 16 inches (330 to 406 millimeters)

*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine-loamy, mixed, superactive, mesic Calcic Argiustolls

### Typical Pedon

*Map unit in which located:* Wapiti loam, 0 to 3 percent slopes

*Location in survey area:* Wapiti loam; in an area of Wapiti loam, 0 to 3 percent slopes; in rangeland; about 2,200 feet west and 2,500 feet south of the northeast corner of section 12, T. 32 S., R. 51 W.; USGS Utleyville topographic quadrangle; 37 degrees, 16 minutes, 20.00 seconds north latitude; and 103 degrees, 5 minutes, 27.00 seconds west longitude; UTM 669,271 meters E., 4,126,779 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 6 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; friable, slightly hard, nonsticky and nonplastic; many fine roots throughout; noneffervescent; neutral (pH 7.0); abrupt smooth boundary.

Bt—6 to 14 inches; brown (10YR 4/3) clay loam, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate fine subangular blocky





Figure 18.—A typical profile of Wapiti clay loam in the irrigated areas east of Trinidad. These soils formed in alluvium on terraces.

structure; firm, very hard, moderately sticky and moderately plastic; common fine roots throughout; 45 percent distinct clay films on all faces of peds; noneffervescent; neutral (pH 7.2); clear smooth boundary.

Btk—14 to 27 inches; pale brown (10YR 6/3) clay loam, brown (10YR 5/3) moist; moderate medium prismatic structure parting to moderate fine subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; common fine roots throughout; 40 percent distinct clay films on all faces of peds; 2 percent fine distinct irregular carbonate masses throughout; violently effervescent (12 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); gradual smooth boundary.

Bk1—27 to 38 inches; very pale brown (10YR 7/3) loam, yellowish brown (10YR 5/4) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few fine roots throughout; 10 percent fine distinct irregular carbonate masses throughout; violently effervescent (18 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.

Bk2—38 to 70 inches; very pale brown (10YR 7/3) clay loam, yellowish brown (10YR 5/4) moist; massive; friable, slightly hard, slightly sticky and slightly plastic; 8 percent fine distinct irregular carbonate masses throughout; violently effervescent (18 percent calcium carbonate equivalent); moderately alkaline (pH 8.3).

#### Range in Characteristics

##### *Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through June and intermittently moist in July and August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 20 to 39 inches to the calcic horizon; 5 to 8 inches to the argillic horizon; 10 to 14 inches to secondary carbonates; 0 inches to the mollic epipedon

*Depth to the base of the argillic horizon:* 20 to 36 inches

*Thickness of the mollic epipedon:* 7 to 20 inches

##### *Particle-size control section (weighted average):*

*Clay content:* 18 to 35 percent

*Sand content:* 30 to 65 percent

*Rock fragment content:* 0 to 5 percent

##### *A horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* loam, clay loam

*Reaction:* neutral or slightly alkaline

*Organic matter content:* 1.0 to 3.0 percent

*Cation-exchange capacity:* 15.1 to 28.7 meq/100 grams

##### *Bt horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* sandy clay loam, clay loam

*Clay content:* 20 to 35 percent

*Sand content:* 30 to 65 percent

*Calcium carbonate equivalent:* 0 to 2 percent  
*Reaction:* neutral or slightly alkaline  
*Organic matter content:* 0.0 to 2.0 percent  
*Cation-exchange capacity:* 14.2 to 28.2 meq/100 grams

**Btk horizon(s):**

*Hue:* 10YR or 7.5YR  
*Value:* 5 or 6 dry, 4 or 5 moist  
*Chroma:* 3 or 4  
*Texture:* clay loam, sandy clay loam  
*Clay content:* 20 to 35 percent  
*Sand content:* 30 to 65 percent  
*Calcium carbonate equivalent:* 5 to 15 percent  
*Sodium adsorption ratio:* 0 to 1  
*Reaction:* slightly alkaline or moderately alkaline  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 14.2 to 27.5 meq/100 grams

**Bk horizon(s)/BCK horizons in some pedons:**

*Hue:* 7.5YR or 10YR  
*Value:* 6 to 8 dry, 4 to 7 moist  
*Chroma:* 2 to 4  
*Texture:* clay loam, sandy clay loam, loam, fine sandy loam  
*Clay content:* 12 to 30 percent  
*Rock fragment content:* 0 to 10 percent fine gravel and 0 to 5 percent medium and coarse gravel  
*Calcium carbonate equivalent:* 2 to 30 percent with one horizon greater than 15 percent within a depth of 40 inches  
*Gypsum content:* 0 to 1 percent  
*Electrical conductivity:* 0 to 2 mmhos/cm  
*Sodium adsorption ratio:* 0 to 2  
*Reaction:* moderately alkaline or strongly  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 8.9 to 23.9 meq/100 grams

*\*Note:* Some pedons average more than 15 percent gravel below a depth of 60 inches.

## Wiley Series

*Map unit(s):* KwC, MI, WeB  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)  
*Landform:* hills, plains, ridges  
*Position on landform:* rise, crest, base slope, interfluvium, talus  
*Parent material:* loess  
*Elevation:* 5,000 to 6,500 feet (1,524 to 1,981 meters)  
*Slope:* 0 to 4 percent  
*Climatic data:*  
*Mean annual precipitation:* 14 to 16 inches (356 to 406 millimeters)  
*Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
*Frost-free period:* 130 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Aridic Haplustalfs



### Typical Pedon

*Map unit in which located:* Wiley silt loam, 0 to 3 percent slopes

*Location in survey area:* Wiley silt loam; in an area of Wiley silt loam, 0 to 3 percent slopes; in rangeland; about 1,000 feet west and 2,600 feet north of the southeast corner of section 25, T. 32 S., R. 55 W.; USGS Tobe topographic quadrangle; 37 degrees, 13 minutes, 31.60 seconds north latitude; and 103 degrees, 31 minutes, 24.00 seconds west longitude; UTM 631,004 meters E., 4,120, 903 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 4 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many fine and medium roots; noneffervescent; slightly alkaline (pH 7.6); clear smooth boundary.
- Bt1—4 to 9 inches; brown (10YR 4/3) silty clay loam, brown (10YR 4/3) crushed, moist; moderate medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; many fine and medium roots; 30 percent distinct clay films on all faces of peds; noneffervescent; slightly alkaline (pH 7.8); clear smooth boundary.
- Bt2—9 to 15 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocky structure; firm, very hard, moderately sticky and moderately plastic; 45 percent distinct clay films on all faces of peds; strongly effervescent (3 percent calcium carbonate equivalent); moderately alkaline (pH 8.0); clear smooth boundary.
- Btk—15 to 26 inches; brown (10YR 5/3) silty clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium angular blocky structure; firm, very hard, moderately sticky and moderately plastic; few fine and medium roots; 45 percent distinct clay films on all faces of peds; 3 percent medium irregular carbonate masses throughout; violently effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Bk1—26 to 35 inches; yellowish brown (10YR 5/4) silt loam, dark yellowish brown (10YR 4/4) moist; moderate fine and medium subangular blocky structure; friable, hard, slightly sticky and slightly plastic; few fine and medium roots; 2 percent fine faint carbonate masses throughout; violently effervescent (5 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Bk2—35 to 44 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; few fine and medium roots; 3 percent medium faint carbonate masses throughout; violently effervescent (10 percent calcium carbonate equivalent); moderately alkaline (pH 8.2); clear smooth boundary.
- Bk43—44 to 72 inches; very pale brown (10YR 7/4) silt loam, light yellowish brown (10YR 6/4) moist; weak fine subangular blocky structure; friable, slightly hard, slightly sticky and slightly plastic; 10 percent medium irregular carbonate masses throughout; violently effervescent (22 percent calcium carbonate equivalent); moderately alkaline (pH 8.2).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* aridic (torric)

*Soil moisture regime class:* ustic

*Seasonal pattern:* moist from April through June and intermittently moist in July and August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 3 to 6 inches to the argillic horizon; 0 to 7 inches to secondary carbonates; 0 inches to the ochric epipedon

*Depth to the base of the argillic horizon:* 14 to 35 inches

*Particle-size control section (weighted average):*

*Clay content:* 28 to 35 percent

*Sand content:* 0 to 25 percent, dominantly very fine sand

*Rock fragment content:* 0 to 5 percent

**A horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Clay content:* 15 to 27 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 12.8 to 22.3 meq/100 grams

**Bt1 horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Clay content:* 27 to 35 percent

*Calcium carbonate equivalent:* 1 to 5 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 21.2 to 27.5 meq/100 grams

**Btk horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Clay content:* 27 to 35 percent

*Calcium carbonate equivalent:* 5 to 10 percent

*Reaction:* moderately alkaline

*Organic matter content:* 0.5 to 1.0 percent

*Cation-exchange capacity:* 21.2 to 27.5 meq/100 grams

**BC horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Texture:* silty clay loam, silt loam

*Clay content:* 20 to 35 percent

*Calcium carbonate equivalent:* 5 to 10 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* pH 7.9 to 9.0

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 14.2 to 27.5 meq/100 grams

**Bk horizon(s):**

*Hue:* 7.5YR or 10YR

*Value:* 6 or 7 dry, 4 to 6 moist

*Chroma:* 2 to 4

*Texture:* silty clay loam, silt loam, loam

*Clay content:* 18 to 35 percent  
*Calcium carbonate equivalent:* 5 to 30 percent  
*Electrical conductivity:* 0 to 8 mmhos/cm  
*Sodium adsorption ratio:* 0 to 5  
*Reaction:* moderately alkaline or strongly alkaline  
*Organic matter content:* 0.0 to 1.0 percent  
*Cation-exchange capacity:* 14.2 to 27.5 meq/100 grams

## Wilid Series

*Map unit(s):* KmC, WM, WrB, WyB  
*Depth class:* very deep  
*Drainage class:* well drained  
*Slowest permeability:* 0.2 to 0.6 in./hr. (moderately slow)  
*Landform:* plains, terraces  
*Position on landform:* talf, rise, tread  
*Parent material:* alluvium and loess  
*Elevation:* 4,400 to 6,000 feet (1,341 to 1,829 meters)  
*Slope:* 0 to 5 percent  
*Climatic data:*  
     *Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)  
     *Mean annual air temperature:* 50 to 53 degrees F. (10.0 to 11.7 degrees C.)  
     *Frost-free period:* 125 to 155 days

*Taxonomic class:* Fine-silty, mixed, superactive, mesic Ustic Haplargids

### Typical Pedon

*Map unit in which located:* Wilid silt loam, 0 to 3 percent slopes  
*Location in survey area:* Wilid silt loam; in an area of Wilid silt loam, 0 to 3 percent slopes; in rangeland; about 900 feet east and 2,450 feet north of the southwest corner of section 29, T. 29 S., R. 59 W.; USGS Brown Sheep Camp topographic quadrangle; 37 degrees, 24 minutes, 5.80 seconds north latitude; and 104 degrees, 2 minutes, 22.50 seconds west longitude; UTM 585,004 meters E., 4,139,858 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

A—0 to 6 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak fine granular structure; friable, slightly hard, slightly sticky and slightly plastic; many very fine and fine roots; strongly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bt—6 to 10 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; friable, hard, moderately sticky and slightly plastic; common very fine and fine roots; 30 percent distinct clay films on all faces of peds; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Btk—10 to 30 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; firm, extremely hard, moderately sticky and moderately plastic; few very fine roots; 30 percent distinct clay films on all faces of peds; 1 percent medium distinct irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk1—30 to 44 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; weak medium subangular blocky structure; friable, very hard, slightly sticky and slightly plastic; few very fine roots; 15 percent medium distinct irregular carbonate



masses throughout; violently effervescent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk2—44 to 60 inches; very pale brown (10YR 7/4) silt loam, light yellowish brown (10YR 6/4) moist; massive; friable, hard, slightly sticky and slightly plastic; 60 percent fine irregular carbonate masses throughout; violently effervescent; moderately alkaline (pH 8.4).

### Range in Characteristics

#### *Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 54 degrees F.

*Mean summer soil temperature:* 70 to 73 degrees F.

*Depth to diagnostic features:* 4 to 7 inches to the argillic horizon, 0 to 7 inches to secondary carbonates; 0 inches to the ochric epipedon

*Depth to the base of the argillic horizon:* 15 to 34 inches

#### *Particle-size control section (weighted average):*

*Clay content:* 20 to 35 percent

*Sand content:* 5 to 20 percent, with less than 15 percent fine or coarser sand

*Rock fragment content:* 0 to 5 percent

#### *A horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 4 to 6 dry, 3 or 4 moist

*Chroma:* 2 or 3

*Texture:* silt loam, silty clay loam

*Clay content:* 15 to 34 percent

*Calcium carbonate equivalent:* 0 to 3 percent

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 1.0 to 2.0 percent

*Cation-exchange capacity:* 12.8 to 27.5 meq/100 grams

#### *Bt and Btk horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 5 or 6 dry, 4 or 5 moist

*Chroma:* 3 or 4

*Clay content:* 27 to 35 percent

*Calcium carbonate equivalent:* 5 to 10 percent

*Reaction:* moderately alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 18.6 to 27.5 meq/100 grams

#### *Bk horizon(s):*

*Hue:* 10YR or 7.5YR

*Value:* 6 or 7 dry, 5 or 6 moist

*Chroma:* 2 to 4

*Texture:* silt loam, loam

*Clay content:* 18 to 27 percent

*Calcium carbonate equivalent:* 5 to 15 percent

*Gypsum content:* 0 to 2 percent

*Electrical conductivity:* 0 to 4 mmhos/cm

*Reaction:* moderately alkaline or strongly alkaline

*Organic matter content:* 0.0 to 0.5 percent

*Cation-exchange capacity:* 12.9 to 21.2 meq/100 grams

## Yattle Series

*Map unit(s):* YaA, YaC

*Depth class:* very deep

*Drainage class:* well drained

*Slowest permeability:* 2.0 to 6.0 in./hr. (moderately rapid)

*Landform:* fans, terraces

*Position on landform:* tread, rise

*Parent material:* sandy alluvium

*Elevation:* 4,500 to 5,000 feet (1,372 to 1,524 meters)

*Slope:* 0 to 6 percent

*Climatic data:*

*Mean annual precipitation:* 12 to 14 inches (305 to 356 millimeters)

*Mean annual air temperature:* 50 to 54 degrees F. (10.0 to 12.0 degrees C.)

*Frost-free period:* 125 to 155 days

*Taxonomic class:* Coarse-loamy, mixed, superactive, mesic Ustic Haplocalcids

### Typical Pedon

*Map unit in which located:* Yattle fine sandy loam, 1 to 6 percent slopes

*Location in survey area:* Yattle fine sandy loam; in an area of Yattle fine sandy loam, 1 to 6 percent slopes; in rangeland; an unsectionalized area about 600 feet from the mouth of Red Rock Canyon and Walsh Canyon, T. 29 S., R. 56 W.; USGS O V Mesa topographic quadrangle; 37 degrees, 31 minutes, 3.30 seconds north latitude; and 103 degrees, 43 minutes, 23.70 seconds west longitude; UTM 612,828 meters E., 4,153,058 meters N., zone 13, NAD83. (Colors are for dry soil unless otherwise noted.)

- A—0 to 4 inches; reddish brown (5YR 4/4) fine sandy loam, dark reddish brown (5YR 3/4) moist; weak fine granular structure; very friable, soft, nonsticky and nonplastic; strongly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.
- Bw1—4 to 28 inches; reddish brown (2.5YR 4/4) fine sandy loam, dark reddish brown (2.5YR 3/4) moist and crushed; weak fine and medium subangular blocky structure; very friable, soft, nonsticky and nonplastic; strongly effervescent; moderately alkaline (pH 8.0); gradual smooth boundary.
- Bw2—28 to 33 inches; reddish brown (2.5YR 4/4) fine sandy loam, dark reddish brown (2.5YR 3/4) moist; weak medium subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; strongly effervescent (2 percent calcium carbonate equivalent); moderately alkaline (pH 8.4); clear smooth boundary.
- Bk1—33 to 43 inches; reddish brown (2.5YR 5/4) fine sandy loam, reddish brown (2.5YR 4/4) crushed and dark red (2.5YR 3/6) moist; moderate medium subangular blocky structure; friable, hard, nonsticky and nonplastic; violently effervescent (14 percent calcium carbonate equivalent); strongly alkaline (pH 8.8); clear smooth boundary.
- Bk2—43 to 70 inches; reddish brown (2.5YR 5/4) fine sandy loam, dark red (2.5YR 3/6) moist; weak fine subangular blocky structure; very friable, slightly hard, nonsticky and nonplastic; violently effervescent (5 percent calcium carbonate equivalent); strongly alkaline (pH 8.8).

### Range in Characteristics

*Soil moisture:*

*Soil moisture regime subclass:* ustic

*Soil moisture regime class:* aridic (torric)

*Seasonal pattern:* moist intermittently from April through August

*Mean annual soil temperature:* 51 to 55 degrees F.

*Mean summer soil temperature:* 70 to 74 degrees F.

*Depth to diagnostic features:* 20 to 35 inches to the calcic horizon; 2 to 5 inches to the cambic horizon; 0 to 4 inches to secondary carbonates; 0 inches to the ochric epipedon

*Thickness of the cambic horizon:* 18 to 30 inches

*Particle-size control section (weighted average):*

*Clay content:* 8 to 18 percent

*Sand content:* 45 to 70 percent

*Rock fragment content:* 0 to 10 percent

*A horizon(s):*

*Hue:* 5YR or 7.5YR

*Value:* 4 or 5 dry, 3 or 4 moist

*Chroma:* 3 or 4

*Clay content:* 5 to 18 percent

*Calcium carbonate equivalent:* 0 to 1 percent

*Reaction:* mildly alkaline to moderately alkaline

*Organic matter content:* 0.5 to 2.0 percent

*Cation-exchange capacity:* 4.6 to 15.5 meq/100 grams

*Bw horizon(s):*

*Hue:* 2.5YR or 5YR

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 4 to 6

*Texture:* loam, fine sandy loam

*Clay content:* 8 to 18 percent

*Calcium carbonate equivalent:* 1 to 5 percent

*Electrical conductivity:* 0 to 2 mmhos/cm

*Reaction:* slightly alkaline or moderately alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 6.2 to 15.1 meq/100 grams

*Bk horizon(s):*

*Hue:* 2.5YR or 5YR

*Value:* 5 or 6 dry, 3 to 5 moist

*Chroma:* 4 to 6

*Texture:* fine sandy loam, loam, sandy loam

*Clay content:* 8 to 18 percent

*Rock fragment content:* 0 to 10 percent, dominantly gravel

*Calcium carbonate equivalent:* 5 to 15 percent

*Electrical conductivity:* 2 to 8 mmhos/cm

*Sodium adsorption ratio:* 1 to 8

*Reaction:* moderately alkaline to strongly alkaline

*Organic matter content:* 0.0 to 1.0 percent

*Cation-exchange capacity:* 6.2 to 15.1 meq/100 grams

# Formation of the Soils

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In this section, the soil-forming processes and soil-forming factors are discussed as they relate to soils in Las Animas County. The factors of soil formation, or the soil environment, are external in nature. The soil-forming processes, or pedogenic, are internal processes. Soil characteristics are determined by the four soil-forming processes and five soil-forming factors.

## Soil-Forming Processes

The four soil-forming processes of soil formation are: (1) additions, (2) losses, (3) translocations, and (4) transformations. (Buol, S.W., F.D. Hole, and R.J. McCracken. 1980.)

The principal *addition* is organic matter. Organic matter begins to accumulate as soon as plant life begins to grow on or in the soil surface. This accumulation is primarily in the surface and generally has a net increase in nutrients and cation-exchange capacity.

Most *losses* occur by leaching. Water movement through the soil dissolves certain minerals from upper horizons and transport them to deeper horizons. Materials are also lost from the soil in the form of gasses while others are lost through erosion. Losses through erosion usually occur in the surface layer where most organic materials accumulate.

*Translocation* is the movement from one location to another. Leaching can move soil chemicals, organic material, and silicate clays through the soil profile. Water is the primary agent of translocation. Water moves down through the soil profile, dissolving soil minerals as it goes. The amount and frequency of water will determine the depth to which minerals are moved. The depth at which water movement stops will determine where minerals are deposited. In drier areas of the plains, very little leaching and translocation occurs so calcium carbonate is often at the surface. In areas of increased moisture, calcium carbonate is transported to underlying soil horizons.

*Transformations* are changes that take place in the soil. Microorganisms that live in the soil feed on fresh organic matter and change it into humus. Chemical weathering changes parent material, and some minerals are changed to new minerals or are completely destroyed. Iron, for example, is present in the soil in many forms depending upon the amount of water in the soil.

## Factors of Soil Formation

Soil formation is dependent upon five important factors. These factors are: (1) parent material, (2) climate, (3) relief (topography) or lay of the land, (4) living organisms on or in the soil, and (5) the length of time that the forces of soil formation have acted on the soil material. These factors are interdependent and, under different conditions, some factors are more effective than others. (Buol, S.W., F.D. Hole, and R.J. McCracken. 1980.)

*Climate* and *vegetation* are active factors of soil formation. They alter soil material and enhance development of genetically related horizons. *Topography*, primarily slope

and aspect, modifies the effects of climate and vegetation. *Parent material* affects the kind of materials that form. *Time* is needed to change the parent material into soil and develop distinct horizons.

### Parent Material

*Parent material* is the unconsolidated material from which soil develops. Initially soil consists of primarily parent material before other soil-forming factors modify the soil. Varying physical and chemical properties of different types of parent material result in the formation of different soils. Texture, color, consistence, permeability and chemical composition are some soil properties that are influenced by parent material. Generally there are three types of parent material: transported, residuum, and lacustrine. The parent materials in this survey are either transported or residuum. There are four major types of transported materials in Las Animas County: (1) alluvium, (2) eolian material, (3) colluvium, and (4) till.

*Alluvium* is material deposited by water. Recent alluvium is commonly stratified sediments deposited on flood plains. Soils that formed in recent alluvium have very little horizon development. Textures vary widely from very sandy to clayey depending on the deposition event. Examples of recent alluvial deposits include Collegiate, Ellicott, Glenburg, Hoehne, Haversid, and Limon soils. Some soils formed from older alluvial deposits on terraces and fans. These soils are not stratified and have some soil development. Older alluvial deposits include Aguilar, Bandarito, Beckton, Mauricanyon, Molinaro, Trujillo, and Trementina soils.

*Eolian parent material* consists of wind-transported sand, silt, and clay. There are two types of wind-transported materials in the survey area. These are (1) loess and (2) eolian deposits. *Loess* consists of wind-deposited silt, clay, and very fine sand. Soils that formed in loess include Baca, Calemore, Raku, and Wiley. These soils are rich in nutrients and have well developed soil profiles. *Eolian deposits* are dominantly sand-sized materials with lesser amounts of silt. These are Pleistocene deposits in the eastern part of the county. Soils that are extremely sandy have no soil development, while soils mixed with some silt and clay have well developed subsoils. Examples of eolian deposits are Ascalon, Fort, Oldest, Valent, Vona, and Vonid soils. Valent soils are found on dune-like topography.

*Colluvium* consists of materials transported by gravity. These soils are dominantly on steep mountain slopes and hillsides. They have varying amounts of rock fragments mixed with the soil. Rock fragments are derived from a variety of sedimentary and igneous sources from surrounding parent material. Mountain slopes often consist of deep colluvial deposits over 5 feet deep, while hillslopes range from 1 to 5 feet deep. Soils derived from colluvium usually have chemical and physical properties similar to the source rock from which they came. For example, colluvium derived from Sangre De Cristo sandstone is red in color and has a high sand content. Colluvium derived from basalt and shale usually has a high clay content. Most soils derived from colluvium in Las Animas County are found in the mountains and foothills. Woodland soils formed in colluvium on mountainsides include Angostura, Graneros, Howlett, Leadville, Mitotes, Nopurg, and Tercio. Grassland soils formed in colluvium on mountainsides include Moran and Mirror. Woodland soils found on hill slopes are Dargol, Fuera, Gulnare, Allens Park, and Rombo.

*Till* is material deposited by high elevation glaciers. These soils often contain high amounts of rock fragments mixed with soil material. These deposits are found at the upper elevations of the Sangre de Cristo Mountains below timberline on mountain slopes. Fallriver is an example of a soil that formed from till.

*Residuum* is soil that formed in place from parent bedrock. Residuum is extensive and is found throughout the survey area on the foothills, mesas, and plains. Residuum in the foothills consists of materials that formed from interbedded shale, siltstone, sandstone, and coal of the Raton formation and Poison Canyon sandstone.

Residuum on mesas formed dominantly from basalt. Residuum in the plains formed from various types of sedimentary rock that includes gypsum, sandstone, limestone, and shale. The Dakota sandstone formation is very extensive and is found in over half of the plains in Las Animas County. Examples of residual soils found in the foothills include the Lorencito and Saruche series. Residual soils that formed on basalt mesas are the Apache, Demayo, Raton, and Schwacheim series. Residual soils that form in the plains from sandstone include the Dalerose and Travessilla series. The Midway and Shingle series formed from shale. Ovmesa soils formed from gypsum.

The nature of residual parent material and the soils that formed depends upon the source rock. Soils that formed from sandstone have high amounts of sand. Soils that formed from shale and basalt have high amounts of clay. Soils that formed from limestone have high amounts of silt and calcium carbonate. Penrose and Lanola soils formed from limestone. The colors of the soil also reflect the colors of the rock. Examples include the red Rizozo, Acantilado, and Yattle series which formed from the Morrison formation and the Dokum Group. Soils that formed from the Dakota sandstone generally are brown in color, and soils that formed from Pierre shale are usually gray.

Many areas have mixtures of alluvium, colluvium and residuum. Residual soils often have a thin mantle of slope alluvium on the surface. In lesser sloping areas, alluvium was deposited on top of residuum on landforms called pediments. The Ritoazul and Razor series are examples of alluvium deposited over residual shale parent material. The Minnequa, Minqwet, Villedry, and Villegreen series have mantles of loess deposited over residuum. The Mirror and Scandard series have colluvium deposited over residuum. The Ryegate series is an example of eolian deposits over residuum. All of these series have parent bedrock at various depths.

## Climate

*Climate* affects the kind of vegetation that grows on soils, the level of biological activity in soils, and the chemical weathering of parent material. Precipitation and temperature are the most important climatic factors, but wind frequency and velocity, humidity, and the amount of cloud cover also impact soil formation.

Precipitation that infiltrates the soil is critical to the rate of weathering. Water is the principal medium in which chemical reactions take place. Water movement downward through the soil carries products of chemical and biological reactions. The total depth of water movement and weathering is called effective precipitation. Temperature directly influences the rates of chemical and biological processes. When temperatures are below 40 degrees F., weathering processes slow down or become nonexistent.

The survey area has three distinct temperature zones and five precipitation zones. The plains are the driest and warmest part of the survey area, typically hot in the summer and cold in the winter. The average annual summer temperature is 71 degrees F. and the average winter temperature is 33 degrees F. There are two precipitation zones in the plains: the northern half of the plains in the survey area averages 12 to 14 inches annual precipitation, while the southern half averages 14 to 16 inches. Two-thirds of the moisture occurs as rain and one-third as snow. The vegetation is dominated by short grass plant communities. In the 12-14 inches precipitation zone, soil horizons are less developed and often have calcium carbonate throughout the profile. In the 14-16 inches precipitation zone, horizons are well developed and the surface and subsoil horizons are leached of carbonates.

The foothills in the survey area have warm summers and cold winters. The average summer temperature is 68 degrees F., and the average winter temperature is 32 degrees F. The foothills have marginally higher amounts of precipitation, averaging 15 to 20 inches annually. Vegetation varies widely depending upon the steepness of slope, the aspect, and the depth to bedrock. Open grassy areas are a combination of



short and mid-sized grasses. Steep slopes at lower elevations are dominated by pinyon and juniper trees. Slopes at higher elevations have ponderosa pine, Douglas fir, and white fir where temperatures are somewhat cooler and precipitation nears 20 inches annually. Soils range from shallow to very deep depending upon the steepness of slope, the effective precipitation, and aspect.

The mountains in the survey area typically have cool summers and cold winters. The average annual temperature is less than 42 degrees F. Summers are very short and the frost-free season is less than 70 days. Precipitation ranges from 20 to 24 inches at lower elevations, and from 24 to 36 inches above 9,000 feet. Moisture occurs consistently throughout the year with heavy snow in the fall, winter, and spring months, and rain in the summer months. Soils are typically moist throughout the year. Soils generally are very deep in most areas. Terraces, fans, and drainageways typically have mid-sized to tall grass vegetation with high amounts of organic matter in the soil. Mountain slopes are dominated by conifers, and soil types typically are leached of organic matter due to the high amounts of precipitation and the lower contribution of organic matter from tree species.

### Living Organisms

Living organisms affect soil development by supplying upper layers with organic matter, recycling nutrients, and helping to prevent erosion. Dead plants and animals are decomposed by microorganisms and other fauna. This results in nutrient recycling by plants, the net addition of organic matter to the soil, and darker colors in the surface layer. Soil microorganisms can also influence the development of soil structure. Nitrogen is added to the soil by organic matter decomposition from biological activity and in association of certain plant species.



**Figure 19.—**The hill in the distance demonstrates the difference aspect can make on vegetation. The north slope has a mixed conifer community of ponderosa pine, Douglas fir, and white fir. The south slope is dominated by Gambel oak with scattered pinyon and ponderosa pine.

Living vegetation helps to control erosion by stabilizing the soil surface. Plant roots in short grass plant communities in the plains effectively cover the surface, hold the soil in place, and increase water infiltration. The canopy of conifers provides continuous shade, creating a cooler environment and a lower rate of evaporation in the soil.

Coniferous forests are dominant in the mountains where higher rainfall occurs. The acidic litter of conifers causes leaching of silicate clays and other minerals. Conifers also contribute lower amounts of organic matter to the soil surface because roots do not die annually and are much larger in size than grasses. These factors result in the formation of Alfisols, such as Angostura, Leadville, and Howlett soils.

Short grass plant communities are dominant in the plains. Grasses have fibrous root systems that contribute organic matter to the surface layer annually creating a thicker darker horizon. In the higher rainfall areas of the plains, these factors result in the formation of Mollisols such as Raku, Calemore, and Wapiti soils. In the drier areas, the surface layer is not normally as thick and the result is the formation of Aridisols such as Wilid, Bacid, and Manzanola.

The foothills have a mixture of scattered trees, shrubs, and short to mid-sized grasses at lower elevations. Steep backslopes of hills tend to have less grass cover and more trees and shrubs. The result is less organic matter in the surface and less development in the subsoil. Inceptisols and Entisols such as Lorencito, Rombo, and Saruche are commonly found on hillslopes. At higher elevations, precipitation is more frequent and subsoils are more developed. Alfisols such as Dargol, Fuera, Gulnare, Allens Park, Littlepine, and Wahatoya are commonly found in these areas. Vegetation on drainageways, terraces, and gently sloping fans are typically grass species. These soils are high in organic matter. Mollisols such as Mauricanyon, Molinaro, and Trujillo soils are common on these landform positions.

## **Relief**

Relief affects the soil development of distinct soil horizons through its influence on soil drainage, erosion and runoff, soil temperature, and effective precipitation. Relief is variable ranging from nearly level plains, flood plains and terraces, to very steep mountains, hills, and canyons.

In the plains, the potential for runoff and water erosion is much lower because the topography is nearly level to gently sloping. These soils tend to have darker surface layers and developed subsoils.

Very steep exposed backslopes have high runoff and significant soil erosion. These soils are less developed and are shallow and moderately deep to bedrock. Lorencito and Saruche are examples of soils with high runoff and significant erosion on steep hill slopes. While mountains have very steep slopes, thick stands of conifers often cover these slopes, preventing runoff and erosion.

*Aspect* has a dramatic effect on vegetation and soil development in the foothills. South-facing slopes are significantly warmer and drier than north-facing slopes. Vegetation on south-facing slopes is dominated by pinyon and juniper trees, which provide very little canopy cover and often inhibit growth of grass species at ground level. This results in shallow soils with very little development. Lorencito and Saruche soils are found on steep south-facing slopes in the foothills. North-facing slopes are much cooler and have more effective precipitation. Vegetation is dominated by ponderosa pine, Gambel's oak, and mid-sized grass species. Developed subsoils are common, and soil depths range from shallow to very deep. Alfisols such as Gulnare, Allens Park, Littlepine, Dargol, Fuera, and Vamer are common on these slopes.

## Time

“Time zero” for soils is described as the point at which a pedologically catastrophic event is completed, initiating a new cycle of soil development (Buol, S.W., F.D. Hole, and R.J. McCracken. 1980). All of the other factors of soil formation (*parent material, climate, relief, and living organisms*) need *time* to influence the properties of developing soils. Soil development is reflected by such characteristics as accumulation of organic matter, degree of structure, evidence of clay movement, depth to calcium carbonate, and thickness of the surface and subsoil.

Time is required for horizons to form. The longer a soil surface has been exposed to soil-forming agents like vegetation and precipitation, the greater the development of soil horizons. Soils that formed in recent alluvium, recent eolian sediments, or on very steep slopes where erosion is active, show very little horizon development. Ellicott and Valent soils are examples of recent alluvium and eolian deposits. Lorencito is an example of a soil on very steep slopes with active erosion. Soils on older, stable surfaces have well developed horizons because the rate of soil formation has exceeded the rate of geologic erosion or deposition. Baca, Raku, and Torreón are examples of soils that formed on stable landscapes with strong development. Soils become more leached, more acid, and more clayey with time. Areas with higher precipitation usually have accelerated soil development.

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# Glossary

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**ABC soil.** A soil having an A, a B, and a C horizon.

**AC soil.** A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

**Aeration, soil.** The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

**Aggregate, soil.** Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

**Alkali (sodic) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Alluvial cone.** The material washed down the sides of mountains and hills by ephemeral streams and deposited at the mouth of gorges in the form of a moderately steep, conical mass descending equally in all directions from the point of issue.

**Alluvial fan.** The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

**Alluvium.** Material, such as sand, silt, or clay, deposited on land by streams.

**Alpha,alpha-dipyridyl.** A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

**Animal unit month (AUM).** The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

**Aquic conditions.** Current soil wetness characterized by saturation, reduction, and redoximorphic features.

**Area reclaim** (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Argillic horizon.** A subsoil horizon characterized by an accumulation of illuvial clay.

**Arroyo.** The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in alluvium.

**Aspect.** The direction in which a slope faces.

**Association, soil.** A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

**Available water capacity (available moisture capacity).** The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low ..... 0 to 3  
Low ..... 3 to 6



Moderate .....	6 to 9
High .....	9 to 12
Very high .....	more than 12

- Backslope.** The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.
- Badland.** Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.
- Bajada.** A broad alluvial slope extending from the base of a mountain range out into a basin and formed by coalescence of separate alluvial fans.
- Basal area.** The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.
- Basal till.** Compact glacial till deposited beneath the ice.
- Base saturation.** The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.
- Base slope.** A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).
- Bedding planes.** Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
- Bedrock.** The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
- Bedrock-controlled topography.** A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.
- Bench terrace.** A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.
- Bisequum.** Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
- Blowout.** A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.
- Bottom land.** The normal flood plain of a stream, subject to flooding.
- Boulders.** Rock fragments larger than 2 feet (60 centimeters) in diameter.
- Breaks.** The steep and very steep broken land at the border of an upland summit that is dissected by ravines.
- Breast height.** An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.
- Brush management.** Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
- Butte.** An isolated small mountain or hill with steep or precipitous sides and a top variously flat, rounded, or pointed that may be a residual mass isolated by erosion or an exposed volcanic neck.

- Cable yarding.** A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.
- Calcareous soil.** A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.
- Caliche.** A more or less cemented deposit of calcium carbonate in soils of warm-temperate, subhumid to arid areas. Caliche occurs as soft, thin layers in the soil or as hard, thick beds directly beneath the solum, or it is exposed at the surface by erosion.
- California bearing ratio (CBR).** The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.
- Canopy.** The leafy crown of trees or shrubs. (See *Crown*.)
- Canyon.** A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.
- Capillary water.** Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
- Catena.** A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.
- Cation.** An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
- Cation-exchange capacity.** The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
- Channery soil material.** Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a chanter.
- Chemical treatment.** Control of unwanted vegetation through the use of chemicals.
- Chiseling.** Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.
- Cirque.** A semicircular, concave, bowl-like area that has steep faces primarily resulting from glacial ice and snow abrasion.
- Clay.** As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay depletions.** Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.
- Clay film.** A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
- Claypan.** A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

**Climax plant community.** The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

**Coarse textured soil.** Sand or loamy sand.

**Cobble (or cobblestone).** A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

**Cobbly soil material.** Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

**COLE (coefficient of linear extensibility).** See *Linear extensibility*.

**Colluvium.** Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

**Complex slope.** Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

**Complex, soil.** A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

**Compressible** (in tables). Excessive decrease in volume of soft soil under load.

**Concretions.** Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

**Congeliturbate.** Soil material disturbed by frost action.

**Conglomerate.** A coarse grained, clastic rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

**Conservation cropping system.** Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

**Conservation tillage.** A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

**Consistence, soil.** Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

**Contour stripcropping.** Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

**Control section.** The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

- Corrosion.** Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
- Cover crop.** A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
- Cropping system.** Growing crops according to a planned system of rotation and management practices.
- Crop residue management.** Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
- Cross-slope farming.** Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.
- Crown.** The upper part of a tree or shrub, including the living branches and their foliage.
- Cuesta.** A hill or ridge that has a gentle slope on one side and a steep slope on the other; specifically, an asymmetric, homoclinal ridge capped by resistant rock layers of slight or moderate dip.
- Culmination of the mean annual increment (CMAI).** The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.
- Cutbanks cave** (in tables). The walls of excavations tend to cave in or slough.
- Decreasers.** The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
- Deferred grazing.** Postponing grazing or resting grazing land for a prescribed period.
- Delta.** A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.
- Dense layer** (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.
- Depth, soil.** Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.
- Depth to rock** (in tables). Bedrock is too near the surface for the specified use.
- Dip slope.** A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.
- Diversion (or diversion terrace).** A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.
- Divided-slope farming.** A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.
- Drainage class** (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil.

Seven classes of natural soil drainage are recognized—*excessively drained*, *somewhat excessively drained*, *well drained*, *moderately well drained*, *somewhat poorly drained*, *poorly drained*, and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

**Drainage, surface.** Runoff, or surface flow of water, from an area.

**Draw.** A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

**Drumlin.** A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

**Duff.** A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

**Ecological site.** An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

**Eluviation.** The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

**Endosaturation.** A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

**Eolian soil material.** Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

**Ephemeral stream.** A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

**Episaturation.** A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

**Erosion.** The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

*Erosion* (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

*Erosion* (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

**Erosion pavement.** A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

**Escarpment.** A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

**Esker.** A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

**Excess fines** (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

**Excess lime** (in tables). Excess carbonates in the soil that restrict the growth of some plants.

**Excess salts** (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.



- Excess sodium** (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.
- Excess sulfur** (in tables). Excessive amount of sulfur in the soil. The sulfur causes extreme acidity if the soil is drained, and the growth of most plants is restricted.
- Extrusive rock**. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.
- Fallow**. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.
- Fan terrace**. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.
- Fast intake** (in tables). The rapid movement of water into the soil.
- Fertility, soil**. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.
- Fibric soil material (peat)**. The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.
- Field moisture capacity**. The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.
- Fill slope**. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.
- Fine textured soil**. Sandy clay, silty clay, or clay.
- Firebreak**. Area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.
- First bottom**. The normal flood plain of a stream, subject to frequent or occasional flooding.
- Flaggy soil material**. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.
- Flagstone**. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.
- Flood plain**. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.
- Fluvial**. Of or pertaining to rivers; produced by river action, as a fluvial plain.
- Foothill**. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.
- Footslope**. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).
- Forb**. Any herbaceous plant not a grass or a sedge.
- Forest cover**. All trees and other woody plants (underbrush) covering the ground in a forest.
- Forest type**. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.



**Fragile** (in tables). A soil is easily damaged by use or disturbance.

**Fragipan.** A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

**Frost action** (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

**Genesis, soil.** The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

**Gilgai.** Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

**Glacial outwash.** Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

**Glacial till.** Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

**Glaciofluvial deposits.** Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

**Gleyed soil.** Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

**Graded stripcropping.** Growing crops in strips that grade toward a protected waterway.

**Grassed waterway.** A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

**Gravel.** Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

**Gravelly soil material.** Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

**Green manure crop** (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

**Ground water.** Water filling all the unblocked pores of the material below the water table.

**Gully.** A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

**Hard bedrock.** Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

**Hardpan.** A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

**Hard to reclaim** (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

**Head out.** To form a flower head.

**Head slope.** A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

**Hemic soil material (mucky peat).** Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

**High-residue crops.** Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

**Hill.** A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

**Horizon, soil.** A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

*O horizon.*—An organic layer of fresh and decaying plant residue.

*A horizon.*—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

*E horizon.*—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

*B horizon.*—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

*C horizon.*—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

*Cr horizon.*—Soft, consolidated bedrock beneath the soil.

*R layer.*—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

**Humus.** The well decomposed, more or less stable part of the organic matter in mineral soils.

**Hydrologic soil groups.** Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

**Igneous rock.** Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

**Illuviation.** The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

**Impervious soil.** A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

**Increasers.** Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

**Infiltration.** The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

**Infiltration capacity.** The maximum rate at which water can infiltrate into a soil under a given set of conditions.

**Infiltration rate.** The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

**Intake rate.** The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2 .....	very low
0.2 to 0.4 .....	low
0.4 to 0.75 .....	moderately low
0.75 to 1.25 .....	moderate
1.25 to 1.75 .....	moderately high
1.75 to 2.5 .....	high
More than 2.5 .....	very high

**Interfluv.** An elevated area between two drainageways that sheds water to those drainageways.

**Intermittent stream.** A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

**Invaders.** On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

**Iron depletions.** Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

**Irrigation.** Application of water to soils to assist in production of crops. Methods of irrigation are:

*Basin.*—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

*Border.*—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

*Controlled flooding.*—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

*Corrugation.*—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

*Drip (or trickle).*—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

*Furrow.*—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

*Sprinkler.*—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

*Subirrigation.*—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

*Wild flooding.*—Water, released at high points, is allowed to flow onto an area without controlled distribution.

**Karst** (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

**Knoll.** A small, low, rounded hill rising above adjacent landforms.

**$K_{sat}$ .** Saturated hydraulic conductivity. (See *Permeability*.)

**Lacustrine deposit.** Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

**Landslide.** The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

**Large stones** (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

**Lava plateau.** An extensive upland mass with a relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments. It is commonly larger than a mesa.

**Leaching.** The removal of soluble material from soil or other material by percolating water.

**Linear extensibility.** Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at  $1/3$ - or  $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

**Liquid limit.** The moisture content at which the soil passes from a plastic to a liquid state.

**Loam.** Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

**Loess.** Fine grained material, dominantly of silt-sized particles, deposited by wind.

**Low-residue crops.** Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

**Low strength.** The soil is not strong enough to support loads.

**Marl.** An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

**Masses.** Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

**Mechanical treatment.** Use of mechanical equipment for seeding, brush management, and other management practices.

**Medium textured soil.** Very fine sandy loam, loam, silt loam, or silt.

**Mesa.** A broad, nearly flat topped and commonly isolated upland mass characterized by summit widths that are more than the heights of bounding erosional scarps.

**Metamorphic rock.** Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

**Mineral soil.** Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

**Minimum tillage.** Only the tillage essential to crop production and prevention of soil damage.

**Miscellaneous area.** An area that has little or no natural soil and supports little or no vegetation.

**Moderately coarse textured soil.** Coarse sandy loam, sandy loam, or fine sandy loam.

**Moderately fine textured soil.** Clay loam, sandy clay loam, or silty clay loam.

**Mollic epipedon.** A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

**Moraine.** An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

**Morphology, soil.** The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

**Mottling, soil.** Irregular spots of different colors that vary in number and size.

Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

**Mountain.** A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

**Muck.** Dark, finely divided, well decomposed organic soil material. (See *Sapric soil material*.)

**Mudstone.** Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

**Munsell notation.** A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

**Natric horizon.** A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

**Neutral soil.** A soil having a pH value of 6.6 to 7.3. (See *Reaction, soil*.)

**Nodules.** Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

**Nose slope.** A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

**Nutrient, plant.** Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

**Organic matter.** Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low .....	less than 0.5 percent
Low .....	0.5 to 1.0 percent
Moderately low .....	1.0 to 2.0 percent
Moderate .....	2.0 to 4.0 percent
High .....	4.0 to 8.0 percent
Very high .....	more than 8.0 percent

**Outwash plain.** A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

**Pan.** A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

**Parent material.** The unconsolidated organic and mineral material in which soil forms.

**Peat.** Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See *Fibric soil material*.)

**Ped.** An individual natural soil aggregate, such as a granule, a prism, or a block.

**Pedisediment.** A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

**Pedon.** The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

**Percolation.** The movement of water through the soil.

**Percs slowly** (in tables). The slow movement of water through the soil adversely affects the specified use.

**Permafrost.** Layers of soil, or even bedrock, occurring in arctic or subarctic regions, in which a temperature below freezing has existed continuously for a long time.

**Permeability.** The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable .....	less than 0.0015 inch
Very slow .....	0.0015 to 0.06 inch
Slow .....	0.06 to 0.2 inch
Moderately slow .....	0.2 to 0.6 inch
Moderate .....	0.6 inch to 2.0 inches
Moderately rapid .....	2.0 to 6.0 inches
Rapid .....	6.0 to 20 inches
Very rapid .....	more than 20 inches



- Phase, soil.** A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.
- pH value.** A numerical designation of acidity and alkalinity in soil. (See *Reaction, soil*.)
- Piping** (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.
- Pitting** (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.
- Plasticity index.** The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.
- Plastic limit.** The moisture content at which a soil changes from semisolid to plastic.
- Plateau.** An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.
- Playa.** The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.
- Plinthite.** The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.
- Plowpan.** A compacted layer formed in the soil directly below the plowed layer.
- Ponding.** Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.
- Poor filter** (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.
- Poorly graded.** Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.
- Poor outlets** (in tables) Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.
- Potential native plant community.** See *Climax plant community*.
- Potential rooting depth (effective rooting depth).** Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.
- Prescribed burning.** Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.
- Productivity, soil.** The capability of a soil for producing a specified plant or sequence of plants under specific management.
- Profile, soil.** A vertical section of the soil extending through all its horizons and into the parent material.
- Proper grazing use.** Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.
- Range condition.** The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is

expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

**Rangeland.** Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

**Reaction, soil.** A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid .....	less than 3.5
Extremely acid .....	3.5 to 4.4
Very strongly acid .....	4.5 to 5.0
Strongly acid .....	5.1 to 5.5
Moderately acid .....	5.6 to 6.0
Slightly acid .....	6.1 to 6.5
Neutral .....	6.6 to 7.3
Slightly alkaline .....	7.4 to 7.8
Moderately alkaline .....	7.9 to 8.4
Strongly alkaline .....	8.5 to 9.0
Very strongly alkaline .....	9.1 and higher

**Red beds.** Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

**Redoximorphic concentrations.** Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

**Redoximorphic depletions.** Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

**Redoximorphic features.** Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

**Reduced matrix.** A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

**Regolith.** The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

**Relief.** The elevations or inequalities of a land surface, considered collectively.

**Residuum (residual soil material).** Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

**Rill.** A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

**Road cut.** A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

**Rock fragments.** Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

- Rooting depth** (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.
- Root zone.** The part of the soil that can be penetrated by plant roots.
- Runoff.** The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.
- Saline soil.** A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.
- Salty water** (in tables). Water that is too salty for consumption by livestock.
- Sand.** As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.
- Sandstone.** Sedimentary rock containing dominantly sand-sized particles.
- Sapric soil material (muck).** The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.
- Saprolite.** Unconsolidated residual material underlying the soil and grading to hard bedrock below.
- Saturation.** Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.
- Scarification.** The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.
- Second bottom.** The first terrace above the normal flood plain (or first bottom) of a river.
- Sedimentary rock.** Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.
- Sequum.** A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See *Eluviation*.)
- Series, soil.** A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.
- Shale.** Sedimentary rock formed by the hardening of a clay deposit.
- Sheet erosion.** The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.
- Shoulder.** The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.
- Shrink-swell** (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.
- Side slope.** A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.
- Silica.** A combination of silicon and oxygen. The mineral form is called quartz.
- Silica-sesquioxide ratio.** The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.
- Silt.** As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05

millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

**Siltstone.** Sedimentary rock made up of dominantly silt-sized particles.

**Similar soils.** Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

**Sinkhole.** A depression in the landscape where limestone has been dissolved.

**Site index.** A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

**Slickensides.** Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

**Slick spot.** A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

**Slippage** (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

**Slope.** The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Level .....	0 to 1 percent
Nearly level .....	0 to 2 percent
Very gently sloping .....	1 to 3 percent
Gently sloping .....	1 to 5 percent
Moderately sloping .....	5 to 9 percent
Strongly sloping .....	9 to 15 percent
Moderately steep .....	15 to 30 percent
Steep .....	25 to 45 percent
Very steep .....	45 percent and higher

Classes for complex slopes are as follows:

Level .....	0 to 1 percent
Nearly level .....	0 to 3 percent
Undulating .....	1 to 8 percent
Rolling .....	4 to 16 percent
Hilly .....	10 to 30 percent
Steep .....	20 to 45 percent
Very steep .....	45 percent and higher

**Slope** (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

**Slow intake** (in tables). The slow movement of water into the soil.

**Slow refill** (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

**Small stones** (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

**Sodic (alkali) soil.** A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

**Sodicity.** The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of  $\text{Na}^+$  to  $\text{Ca}^{++} + \text{Mg}^{++}$ . The degrees of sodicity and their respective ratios are:

Slight .....	less than 13:1
Moderate .....	13-30:1
Strong .....	more than 30:1

**Sodium adsorption ratio (SAR).** A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

**Soft bedrock.** Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

**Soil.** A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

**Soil separates.** Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand .....	2.0 to 1.0
Coarse sand .....	1.0 to 0.5
Medium sand .....	0.5 to 0.25
Fine sand .....	0.25 to 0.10
Very fine sand .....	0.10 to 0.05
Silt .....	0.05 to 0.002
Clay .....	less than 0.002

**Solum.** The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

**Stone line.** A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

**Stones.** Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

**Stony.** Refers to a soil containing stones in numbers that interfere with or prevent tillage.

**Stripcropping.** Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

**Structure, soil.** The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

**Stubble mulch.** Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

**Subsoil.** Technically, the B horizon; roughly, the part of the solum below plow depth.

**Subsoiling.** Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

**Substratum.** The part of the soil below the solum.

**Subsurface layer.** Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

**Summer fallow.** The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

**Summit.** The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

**Surface layer.** The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

**Surface soil.** The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

**Talus.** Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

**Taxadjuncts.** Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

**Terminal moraine.** A belt of thick glacial drift that generally marks the termination of important glacial advances.

**Terrace.** An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

**Terrace** (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

**Texture, soil.** The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

**Thin layer** (in tables). Otherwise suitable soil material that is too thin for the specified use.

**Tilth, soil.** The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

**Toeslope.** The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

**Too arid** (in tables). The soil is dry most of the time, and vegetation is difficult to establish.



- Topsoil.** The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.
- Toxicity** (in tables). Excessive amount of toxic substances, such as sodium or sulfur, that severely hinder establishment of vegetation or severely restrict plant growth.
- Trace elements.** Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.
- Tuff.** A compacted deposit that is 50 percent or more volcanic ash and dust.
- Unstable fill** (in tables). Risk of caving or sloughing on banks of fill material.
- Upland.** Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.
- Valley fill.** In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.
- Variiegation.** Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.
- Water bars.** Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.
- Weathering.** All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.
- Well graded.** Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.
- Wilting point (or permanent wilting point).** The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.
- Windthrow.** The uprooting and tipping over of trees by the wind.

## Tables

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Table 1.--Temperature and precipitation

(Recorded in the period 1971-2000 at Trinidad FAA Airport, CO-8434)

Month	Temperature (Degrees F.)						Precipitation (Inches)				
				2 yrs in 10		avg. # of grow deg. days*	2 yrs. in 10			avg. # of days w/.1 or more	avg. total snow- fall
	avg. daily max.	avg. daily min.	avg.	max. temp. >than	min. temp. <than		avg.	less than	more than		
January	46.8	17.1	31.9	72	-10	34	0.41	0.17	0.63	1	4.8
February	51.5	20.5	36.0	75	-9	66	0.45	0.13	0.71	1	4.8
March	58.0	26.7	42.4	80	4	159	0.94	0.41	1.44	3	8.0
April	65.3	34.1	49.7	85	13	319	1.05	0.38	1.49	3	4.7
May	74.2	43.6	58.9	91	27	586	1.80	0.78	2.68	4	1.9
June	84.6	52.9	68.8	100	38	863	1.38	0.56	2.09	3	0.0
July	88.8	58.3	73.5	100	48	1040	2.23	0.95	3.24	4	0.0
August	86.4	57.0	71.7	98	47	982	2.24	0.96	3.45	5	0.0
September	79.4	49.0	64.2	94	29	727	1.27	0.58	1.93	3	0.7
October	69.1	37.2	53.2	87	15	423	0.90	0.28	1.43	2	4.0
November	55.4	25.2	40.3	79	-1	134	0.84	0.32	1.33	2	7.6
December	47.0	17.6	32.3	73	-10	43	0.54	0.27	0.75	2	5.9
Yearly:	---	---	---	---	---	---	---	---	---	---	---
Average	67.2	36.6	51.9	---	---	---	---	---	---	---	---
Extreme	104	-24	---	101	-17	---	---	---	---	---	---
Total	---	---	---	---	---	5377	14.05	11.42	16.67	33	42.5

Average # of days per year with at least 1 inch of snow on the ground: 36

\*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area. (Threshold: 40.0 deg. F)

Table 2.--Freeze dates in spring and fall

(Recorded in the period 1971-2000 at Trinidad FAA Airport, CO-8434)

Probability	Temperature		
	24°F or lower	28°F or lower	32°F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	April 29	May 4	May 17
2 years in 10 later than--	April 24	April 30	May 13
5 years in 10 later than--	April 14	April 22	May 5
First freezing temperature in fall:			
1 yr. in 10 earlier than--	October 10	September 29	September 19
2 yrs. in 10 earlier than--	October 15	October 5	September 24
5 yrs. in 10 earlier than--	October 25	October 16	October 3

Table 3.--Growing season

(Recorded for the period 1971-2000 at Trinidad FAA Airport, CO-8434)

Probability	Daily Minimum Temperature		
	# days > 24°F	# days > 28°F	# days > 32°F
9 years in 10	172	155	130
8 years in 10	179	162	136
5 years in 10	193	176	149
2 years in 10	207	191	162
1 year in 10	214	198	169



Table 4.--Acreage and proportionate extent of the soils

Map symbol	Soil name	Acres	Percent
AA	Ayon-Apache complex, 1 to 9 percent slopes-----	13,521	0.4
AC	Ayon-Capulin complex, 3 to 25 percent slopes-----	22,913	0.8
AcC	Acantilado loam, 2 to 7 percent slopes-----	1,786	*
AED	Earthen Dam-----	96	*
AnB	Ascalon sandy loam, 0 to 3 percent slopes-----	17,077	0.6
Ap	Apache cobbly loam, 5 to 25 percent slopes, stony-----	16,708	0.6
AR	Calcidic Argiustolls-Rock outcrop complex, 40 to 60 percent slopes-----	19,852	0.7
AsB	Ascalon sandy loam, 0 to 3 percent slopes, overblown-----	1,547	*
AV	Aguilar-Beckton complex, 0 to 2 percent slopes-----	11,620	0.4
AvC	Aguilar silt loam, 2 to 5 percent slopes, gullied-----	12,590	0.4
AW	Allens Park-Wahatoya complex, 30 to 60 percent slopes-----	14,290	0.5
BaA	Baca silt loam, 0 to 3 percent slopes-----	57,510	1.9
BaB	Bacid silt loam, 1 to 5 percent slopes-----	11,550	0.4
BaC	Baca silt loam, 3 to 5 percent slopes, cool-----	3,397	0.1
BcA	Baca silt loam, 0 to 3 percent slopes, cool-----	8,159	0.3
Bk	Fallriver extremely stony sandy loam, 30 to 60 percent slopes-----	3,039	0.1
BnA	Bacid silty clay loam, 0 to 2 percent slopes-----	1,630	*
BT	Barela-Raton complex, 1 to 8 percent slopes-----	2,507	*
BwA	Bloom silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	3,833	0.1
Bx	Boxcanyon silt loam, 0 to 3 percent slopes-----	7,705	0.3
CaD	Razor silty clay, 4 to 12 percent slopes-----	26,804	0.9
CC	Chacuaco-Capulin loams, 1 to 4 percent slopes-----	25,459	0.8
CD	Chacuaco-Dalerose complex, 2 to 7 percent slopes-----	14,662	0.5
Co	Collegiate loam, 1 to 4 percent slopes-----	3,951	0.1
CpA	Calemore clay loam, 0 to 2 percent slopes-----	619	*
CpB	Calemore silt loam, 0 to 3 percent slopes-----	15,093	0.5
CpC	Capulin loam, 1 to 6 percent slopes-----	35,849	1.2
CpT	Capulin-Torreón complex, 0 to 7 percent slopes-----	156	*
Ct	Breece sandy loam, 5 to 15 percent slopes-----	1,644	*
CwC	Cumulic Cryaquolls, clay, 2 to 5 percent slopes-----	1,078	*
DaE	Dalerose-Rock outcrop complex, 3 to 25 percent slopes-----	107,566	3.5
De	Davtone loam, 3 to 9 percent slopes-----	338	*
DFV	Fuera-Dargol-Vamer complex, 10 to 45 percent slopes-----	82,214	2.7
DH	Davtone-Histic Cryaquolls complex, 2 to 5 percent slopes-----	1,022	*

Table 4.--Acreage and proportionate extent of the soils--continued

Map symbol	Soil name	Acres	Percent
Dm	Demayo very cobbly clay loam, 10 to 30 percent slopes, stony-----	7,318	0.2
Ds	Des Moines-Rock outcrop complex, 15 to 50 percent slopes-----	22	*
Dt	Davtone loam, 5 to 20 percent slopes-----	3,469	0.1
Dv	Feterita silt loam, 0 to 2 percent slopes-----	1,224	*
Ec	Eguaje-Demayo complex, 1 to 12 percent slopes, stony-----	13,012	0.4
EL	Ellicott-Las Animas complex, 0 to 2 percent slopes, occasionally flooded-	4,579	0.2
ES	Embargo-Schwacheim complex, 1 to 9 percent slopes, stony-----	686	*
FcB	Wapiti clay loam, 0 to 3 percent slopes-----	2,148	*
FcC	Fort loam, 3 to 5 percent slopes-----	653	*
FcD	Fort sandy loam, 1 to 7 percent slopes-----	26,728	0.9
Fp	Fishers very cobbly loam, 15 to 45 percent slopes, very stony-----	6,152	0.2
FtC	Oldest loam, 1 to 6 percent slopes-----	18,871	0.6
FuD	Bandarito clay loam, 3 to 9 percent slopes-----	6,295	0.2
FuE	Bandarito clay loam, 9 to 18 percent slopes-----	594	*
FW	Bandarito-Fishers complex, 5 to 20 percent slopes, stony-----	1,248	*
FyB	Furia clay loam, 1 to 3 percent slopes-----	930	*
GA	Gulnare-Allens Park complex, 5 to 35 percent slopes-----	63,699	2.1
GC	Groomer-Cucharas complex, 5 to 35 percent slopes-----	2,933	*
GgB	Glenberg fine sandy loam, 0 to 3 percent slopes, occasionally flooded----	4,050	0.1
GmE	Aquic Dystricrypts-----	419	*
Gn	Angostura very stony loam, 20 to 65 percent slopes-----	10,847	0.4
GP	Gravel Pits-----	330	*
GR	Gulnare-Rock outcrop complex, 15 to 50 percent slopes, very stony-----	33,285	1.1
Hn	Hoehne fine sandy loam, 0 to 2 percent slopes, occasionally flooded----	2,634	*
HvA	Haversid silt loam, 0 to 3 percent slopes-----	17,616	0.6
HyD	Humbar Springs gravelly loam, 3 to 12 percent slopes-----	821	*
K2D	Kimera-Chicosa complex, 4 to 12 percent slopes-----	6,136	0.2
KI	Kandrix-Chicosa complex, 3 to 9 percent slopes-----	8,668	0.3
Km	Kimera loam, 1 to 5 percent slopes-----	1,986	*
KmC	Wilid-Kimera complex, 2 to 9 percent slopes-----	42,865	1.4
KO	Kimera-Oterodry fine sandy loams, 2 to 7 percent slopes-----	20,677	0.7
Kw	Kandrix loam, 1 to 6 percent slopes-----	3,210	0.1
KwC	Kandrix-Wiley complex, 1 to 6 percent slopes-----	18,848	0.6
La	Lanola channery loam, 3 to 25 percent slopes-----	4,767	0.2

Table 4.--Acreage and proportionate extent of the soils--continued

Map symbol	Soil name	Acres	Percent
Lb	La Brier silty clay loam, 0 to 3 percent slopes-----	135	*
Ld	Leadville cobbly sandy loam, 5 to 40 percent slopes-----	1,165	*
LG	Manzanst-Ritoazul complex, 4 to 12 percent slopes-----	11,055	0.4
LH	Leadville-Howlett complex, 5 to 40 percent slopes, stony-----	16,413	0.5
Lo	La Brier-Rock outcrop complex, 0 to 9 percent slopes-----	77	*
LoA	Limon silty clay loam, 0 to 1 percent slopes-----	6,499	0.2
LR	Fallriver-Rubble land complex, 40 to 80 percent slopes-----	58	*
LRT	Lorencito-Rombo-Sarcillo complex, 25 to 65 percent slopes-----	92,892	3.1
Ls	Las Animas loam, 0 to 1 percent slopes-----	197	*
LST	Lorencito-Sarcillo-Trujillo complex, 3 to 25 percent slopes-----	52,663	1.7
Lt	Littlepine sandy loam, 3 to 15 percent slopes-----	9,499	0.3
LvD	Lorencito clay loam, 3 to 20 percent slopes-----	4,641	0.2
LW	Littlepine-Wahatoya complex, 15 to 40 percent slopes-----	3,591	0.1
MaB	Mauricanyon loam, 0 to 3 percent slopes, warm-----	12,700	0.4
MaW	Mauricanyon clay loam, 0 to 2 percent slopes, wet-----	364	*
MD	Mine Dumps-----	336	*
Mf	Moran Family, 5 to 40 percent slopes-----	91	*
MG	Tercio-Graneros complex, 15 to 40 percent slopes-----	9,922	0.3
MGR	Midway-Ritoazul-Rock outcrop complex, 1 to 15 percent slopes-----	12,799	0.4
MI	Minqwet-Wiley silt loams, 1 to 4 percent slopes-----	24,211	0.8
MIK	Midway-Chicosa complex, 5 to 35 percent slopes-----	12,276	0.4
MnA	Manzanst silty clay loam, 0 to 1 percent slopes-----	1,504	*
MnB	Manzanst silty clay loam, 1 to 3 percent slopes-----	53,024	1.7
MnW	Aquic HaplustalFs, 0 to 3 percent slopes-----	584	*
MoA	Mauricanyon loam, 0 to 2 percent slopes-----	3,967	0.1
MoB	Mauricanyon loam, 0 to 2 percent slopes, dry-----	7,916	0.3
MoR	Mion-Rock outcrop complex, 10 to 75 percent slopes-----	78	*
MP	Midway-Razor-Rock outcrop Complex, 1 to 15 Percent slopes-----	24,990	0.8
MR	Mirror-Rock outcrop complex, 40 to 70 percent slopes-----	2,219	*
MvC	Manvel silt loam, 1 to 5 percent slopes-----	40,203	1.3
MyD	Midway clay loam, 3 to 15 percent slopes, gullied-----	34,548	1.1
MzA	Manzanola silty clay loam, 0 to 1 percent slopes-----	30,702	1.0
MzB	Manzanola silty clay loam, 1 to 4 percent slopes-----	100,260	3.3
NM	Nopurg-Mitotes complex, 10 to 40 percent slopes, stony-----	9,088	0.3

Table 4.--Acreage and proportionate extent of the soils--continued

Map symbol	Soil name	Acres	Percent
OeC	Otero sandy loam, 1 to 6 percent slopes-----	5,360	0.2
OtD	Oterodry fine sandy loam, 1 to 9 percent slopes-----	613	*
OyB	Olnest sandy loam, 0 to 3 percent slopes-----	4,418	0.1
OyC	Olnest sandy loam, 3 to 7 percent slopes-----	6,706	0.2
PeD	Penrose loam, 1 to 9 percent slopes-----	57,109	1.9
PeF	Penrose-Midway-Rock outcrop complex, 10 to 40 percent slopes-----	39,511	1.3
PM	Penrose-Minnequa complex, 2 to 15 percent slopes-----	6,865	0.2
PnD	Penrose loam, moist, 2 to 15 percent slopes-----	3,751	0.1
RaB	Ravine silty clay loam, 1 to 5 percent slopes-----	9,382	0.3
RaC	Ritoazul silty clay, 0 to 4 percent slopes-----	8,879	0.3
RB	Raton-Barela complex, 3 to 15 percent slopes, very stony-----	618	*
Rc	Raku silt loam, 0 to 2 percent slopes-----	25,821	0.9
RcA	Raku silt clay loam, 0 to 1 percent slopes-----	2,801	*
Rd	Romound silt loam, 1 to 5 percent slopes-----	4,714	0.2
RF	Rock outcrop-Rubble land complex, 45 to 90 percent slopes-----	2,546	*
Rt	Raton cobbly loam, 3 to 20 percent slopes, very stony-----	4,235	0.1
RyC	Ryegate sandy loam, 1 to 8 percent slopes-----	2,938	*
RzD	Rizozo-Rock outcrop complex, moist, 3 to 20 percent slopes-----	1,952	*
Sc	Schwacheim gravelly silt loam, 3 to 20 percent slopes, very stony-----	1,345	*
ScR	Schwacheim-Rock outcrop complex, 5 to 30 percent slopes, extremely stony-	4,287	0.1
SG	Ovmesa-Romound complex, 2 to 30 percent slopes-----	5,477	0.2
ShD	Shingle-Penrose complex, 2 to 15 percent slopes-----	64,581	2.1
SL	Standard-Leadville-Rock outcrop complex, 35 to 60 percent slopes, stony--	20,826	0.7
SM	Schamber-Midway complex, 3 to 25 percent slopes-----	13	*
Sn	Sitcan fine sandy loam, 1 to 4 percent slopes-----	4,535	0.1
SR	Saruche-Rombo-Rock outcrop complex, 25 to 50 percent slopes-----	102,572	3.4
Sw	Molinaro loam, 2 to 12 percent slopes-----	12,380	0.4
TbA	Trementina silt loam, 0 to 2 percent slopes-----	5,579	0.2
TeE	Tecolote very cobbly sandy loam, 5 to 15 percent slopes, very stony-----	4,699	0.2
TF	Torreon-Fuera complex, 9 to 30 percent slopes-----	3,367	0.1
TgD	Trujillo sandy loam, 3 to 9 percent slopes-----	7,090	0.2
TgE	Trujillo sandy loam, 9 to 25 percent slopes-----	3,207	0.1
TL	Torreon-Lorencito complex, 8 to 35 percent slopes-----	2,763	*
TmD	Trujillo loam, 3 to 9 percent slopes-----	8,166	0.3

Table 4.--Acreage and proportionate extent of the soils--continued

Map symbol	Soil name	Acres	Percent
TnA	Trementina silty clay loam, 0 to 2 percent slopes, cool-----	3,994	0.1
TnB	Trementina silt loam, 0 to 2 percent slopes, dry-----	2,087	*
To	Torreón silt loam, 1 to 4 percent slopes-----	30,159	1.0
ToD	Torreón clay loam, 3 to 9 percent slopes-----	6,209	0.2
ToE	Torreón soils complex, 5 to 20 percent slopes-----	1,454	*
TsD	Travessilla-Rock outcrop complex, 1 to 9 percent slopes-----	207,536	6.8
TsE	Torreón stony clay loam, 5 to 20 percent slopes-----	2,194	*
TsF	Travessilla-Rock outcrop complex, 25 to 70 percent slopes-----	202,746	6.7
Us	Aridic Calciustolls, 15 to 35 percent slopes-----	21,885	0.7
VB	Vona loamy sand, 0 to 3 percent slopes, overblown-----	4,217	0.1
VD	Dargol-Stout-Vamer complex, 1 to 9 percent slopes-----	10,811	0.4
VnC	Vona sandy loam, 3 to 6 percent slopes-----	7,272	0.2
VoB	Vona sandy loam, 0 to 3 percent slopes-----	2,161	*
VoC	Vonid sandy loam, 3 to 7 percent slopes-----	10,054	0.3
VT	Villedry-Travessilla complex, 1 to 8 percent slopes-----	28,291	0.9
VtC	Valent fine sand, 2 to 8 percent slopes-----	5,137	0.2
W	Water-----	2,485	*
Wa	Wapiti loam, 0 to 3 percent slopes-----	11,585	0.4
WC	Plughat-Villegreen complex, 1 to 4 percent slopes-----	118,942	3.9
WeB	Wiley silt loam, 0 to 3 percent slopes-----	64,623	2.1
WM	Minnequa-Wilid silt loams, 1 to 6 percent slopes-----	71,307	2.4
WrB	Wilid silty clay loam, 1 to 3 percent slopes-----	4,821	0.2
WV	Almagre-Villedry silt loams, 1 to 4 percent slopes-----	121,138	4.0
WyB	Wilid silt loam, 0 to 3 percent slopes-----	150,875	5.0
YaA	Yattle fine sandy loam, 0 to 1 percent slopes-----	1,588	*
YaC	Yattle fine sandy loam, 1 to 6 percent slopes-----	3,066	0.1
ZR	Rizozo-Rock outcrop complex, 3 to 20 percent slopes-----	13,248	0.4
ZRF	Rizozo-Rock outcrop complex, 20 to 50 percent slopes-----	17,637	0.6
	Total-----	3,032,800	100.0

\* Less than 0.1 percent.

(Yields in the "N" columns are for nonirrigated areas; those in the "I" columns are for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

[illegible]





Table 5.--Irrigated and nonirrigated yields by map unit--continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Oats		Wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
BwA: Bloom-----	6w	4w	---	3.00	---	---	---	4.00	---	30.00	---	---
Bx: Boxcanyon-----	4c	2e	---	4.00	---	22.00	---	3.50	---	65.00	21.00	60.00
CaD: Razor-----	6e	---	---	2.50	---	---	---	2.50	---	50.00	---	45.00
CC: Chacuaco----- Capulin-----	4e 4c	3e 2e	---	4.50	---	23.00	---	3.50	---	65.00	22.00	60.00
CD: Chacuaco----- Dalerose-----	4e 7s	3e ---	---	4.00	---	22.00	---	3.50	---	65.00	22.00	60.00
Co: Collegiate-----	4w	3w	---	4.50	---	---	---	---	---	70.00	---	---
CpA: Calemore-----	4c	2e	---	5.50	---	26.00	---	4.00	---	70.00	---	70.00
CpB: Calemore-----	4c	2e	---	5.50	---	25.00	---	3.50	---	70.00	27.00	65.00
CpC: Capulin-----	4e	4e	---	5.00	---	23.00	---	4.00	---	70.00	22.00	65.00
CpT: Capulin----- Torreon-----	4e 4c	4e 4e	---	5.00	---	23.00	---	4.00	---	70.00	22.00	65.00

Table 5.--Irrigated and nonirrigated yields by map unit--continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Oats		Wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
Ct: Breece-----	6e	---	---	3.50	---	---	---	4.50	---	70.00	---	---
CwC: Cumulic Cryaquolls-	4w	4w	---	---	---	---	1.50	3.50	---	---	---	---
DaE: Dalerose-----	7s	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---										
De: Davtone-----	6e	---	---	3.50	---	---	1.00	4.00	---	70.00	---	65.00
DFV: Fuera-----	7e	---	---	---	---	---	---	---	---	---	---	---
Dargol-----	7e	---										
Vamer-----	7e	---										
DH: Davtone-----	6e	6c	---	2.50	---	---	1.00	4.00	---	---	---	---
Histic Cryaquolls--	5w	4w										
Dm: Demayo-----	7s	---	---	---	---	---	---	---	---	---	---	---
Ds: Des Moines-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---										
Dt: Davtone-----	6e	---	---	2.50	---	---	1.00	4.00	---	---	---	---

Table 5.--Irrigated and nonirrigated yields by map unit--continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Oats		Wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
Dv: Feterita-----	4c	3c	---	4.00	---	---	---	3.00	---	---	---	---
Ec: Eguaje-----	7s	---	---	---	---	---	---	---	---	---	---	---
Demayo-----	7s	---										
EL: Ellicott-----	4c	2e	---	3.50	---	20.00	---	---	---	35.00	---	---
Las Animas-----	4w	3w										
ES: Embargo-----	6s	---	---	---	---	---	1.00	4.00	---	---	---	---
Schwacheim-----	7e	---										
FcB: Wapiti-----	4c	2e	---	5.50	---	25.00	---	3.00	---	65.00	---	70.00
FcC: Fort-----	6e	3e	---	5.00	---	24.00	---	3.00	---	55.00	---	60.00
FcD: Fort-----	6e	4e	---	5.00	---	24.00	---	3.00	---	55.00	---	60.00
Fp: Fishers-----	7e	---	---	---	---	---	---	---	---	---	---	---
FtC: Olnest-----	4c	4e	---	4.50	---	23.00	---	3.00	---	65.00	22.00	60.00
FuD: Bandarito-----	4e	4c	---	4.00	---	---	1.00	4.00	---	70.00	---	---



Table 5.--Irrigated and nonirrigated yields by map unit--continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Oats		Wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
GR: Rock outcrop-----	8s	---	---	---	---	---	---	---	---	---	---	---
Hn: Hoehne-----	4e	2e	---	4.50	---	23.00	---	4.00	---	65.00	---	60.00
HvA: Haversid-----	6c	2e	---	4.50	---	23.00	---	4.00	---	70.00	---	65.00
HyD: Humbarsprings-----	6e	6e	---	---	---	---	---	---	---	---	---	---
K2D: Kimera----- Chicosa-----	6e 6e	4e 6e	---	4.00	---	22.00	---	3.00	---	60.00	---	55.00
KI: Kandrix----- Chicosa-----	6e 6e	--- 6e	---	4.50	---	23.00	---	4.00	---	65.00	20.00	60.00
Km: Kimera-----	6e	4e	---	4.00	---	22.00	---	3.00	---	60.00	---	55.00
KmC: Wilid----- Kimera-----	6c 6e	3e 3e	---	4.50	---	22.00	---	3.50	---	65.00	---	60.00
KO: Kimera----- Oterodry-----	6e 6e	4e 4e	---	4.50	---	23.00	---	3.50	---	65.00	---	60.00



Table 5.--Irrigated and nonirrigated yields by map unit--continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Oats		Wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
Kw:												
Kandrix-----	4e	4e	---	4.50	---	23.00	---	4.00	---	65.00	21.00	60.00
KwC:												
Kandrix-----	4e	4e	---	4.50	---	24.00	---	3.50	---	65.00	21.00	65.00
Wiley-----	4c	3e										
La:												
Lanola-----	7s	---	---	---	---	---	---	---	---	---	---	---
Lb:												
La Brier-----	3c	2c	---	---	---	---	---	---	---	---	---	---
Ld:												
Leadville-----	7e	---	---	---	---	---	---	---	---	---	---	---
LG:												
Manzanst-----	6e	6e	---	4.50	---	22.00	---	3.50	---	60.00	---	55.00
Ritoazul-----	6e	6e										
LH:												
Leadville-----	7e	---	---	---	---	---	---	---	---	---	---	---
Howlett-----	7e	---										
Lo:												
La Brier-----	3c	2c	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---										
LoA:												
Limon-----	6s	3s	---	4.00	---	18.00	---	3.00	---	60.00	---	50.00

Table 5.--Irrigated and nonirrigated yields by map unit--continued

[illegible]



Table 5.--Irrigated and nonirrigated yields by map unit--continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Oats		Wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
MoA: Mauricanyon-----	3c	2c	---	5.50	20.00	26.00	---	4.50	---	80.00	26.00	65.00
MoB: Mauricanyon, dry---	6c	2c	---	5.50	---	26.00	---	3.50	---	80.00	---	75.00
MoR: Mion-----	7e	7e	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---										
MP: Midway-----	7e	---	---	---	---	---	---	---	---	---	---	---
Razor-----	6e	3s										
Rock outcrop-----	8s	---										
MR: Mirror-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---										
MvC: Manvel-----	6e	3e	---	4.00	---	21.00	---	3.50	---	60.00	---	55.00
MyD: Midway-----	7e	---	---	---	---	---	---	---	---	---	---	---
MzA: Manzanola-----	6c	2s	---	4.00	---	22.00	---	3.00	---	60.00	---	60.00
MzB: Manzanola-----	6c	3e	---	5.00	---	23.00	---	4.00	---	65.00	---	60.00



Table 5.--Irrigated and nonirrigated yields by map unit--continued

[illegible]





Table 5.--Irrigated and nonirrigated yields by map unit--continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Oats		Wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
Sw: Molinaro-----	4e	4e	---	4.00	---	---	---	4.00	---	70.00	27.00	65.00
TbA: Trementina, warm---	4c	2s	---	5.50	---	26.00	---	4.00	---	80.00	24.00	75.00
TeE: Tecolote-----	7s	---	---	---	---	---	---	---	---	---	---	---
TF: Torreon, stony-----	6e	---	---	---	---	---	---	---	---	---	---	---
Fuera-----	7e	---										
TgD: Trujillo-----	4e	4e	---	4.00	---	---	---	4.00	---	70.00	---	---
TgE: Trujillo-----	6e	---	---	4.00	---	---	---	4.00	---	70.00	---	---
TL: Torreon, stony-----	6e	---	---	---	---	---	---	---	---	---	---	---
Lorencito-----	6e	---										
TmD: Trujillo-----	4e	4e	---	4.00	---	---	---	4.00	---	70.00	---	---
TnA: Trementina, cool---	3c	2s	---	5.50	---	25.00	---	4.00	---	80.00	24.00	65.00
TnB: Trementina, dry----	6c	2s	---	5.00	---	26.00	---	3.50	---	80.00	---	75.00

Table 5.--Irrigated and nonirrigated yields by map unit--continued

Map symbol and soil name	Land capability		Alfalfa hay		Corn silage		Grass hay		Oats		Wheat	
	N	I	N	I	N	I	N	I	N	I	N	I
			<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Tons</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>	<u>Bu</u>
To: Torreon-----	4c	4e	---	5.00	---	23.00	---	4.00	---	70.00	---	65.00
ToD: Torreon-----	6e	---	---	5.00	---	23.00	---	4.00	---	70.00	---	65.00
ToE: Torreon-----	6e	4e	---	4.50	---	22.00	---	4.00	---	65.00	---	60.00
Torreon, stony----	6e	---										
TsD: Travessilla-----	6s	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---										
TsE: Torreon-----	6e	---	---	5.00	---	---	---	4.00	---	70.00	---	65.00
TsF: Travessilla-----	7e	---	---	---	---	---	---	---	---	---	---	---
Rock outcrop-----	8s	---										
Us: Aridic Calciustolls	7e	---	---	---	---	---	---	---	---	---	---	---
VB: Vona, overblown----	4e	3e	---	4.00	---	22.00	---	3.00	---	60.00	18.00	50.00

Table 5.--Irrigated and nonirrigated yields by map unit--continued

[illegible]



Table 5.--Irrigated and nonirrigated yields by map unit--continued

[illegible]

Table 6.--Prime and other important farmland

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Map unit name	Farmland Classification
BnA	Bacid silty clay loam, 0 to 2 percent slopes	Farmland of statewide importance
CpA	Calemore clay loam, 0 to 2 percent slopes	Farmland of statewide importance
FcB	Wapiti clay loam, 0 to 3 percent slopes	Farmland of statewide importance
MaB	Mauricanyon loam, 0 to 3 percent slopes, warm	Farmland of statewide importance
MaW	Mauricanyon clay loam, 0 to 2 percent slopes, wet	Farmland of statewide importance
MoA	Mauricanyon loam, 0 to 2 percent slopes	Farmland of statewide importance
RcA	Raku silt clay loam, 0 to 1 percent slopes	Farmland of statewide importance
TnA	Trementina silty clay loam, 0 to 2 percent slopes, cool	Farmland of statewide importance
WrB	Wilid silty clay loam, 1 to 3 percent slopes	Farmland of statewide importance
BaA	Baca silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
BaC	Baca silt loam, 3 to 5 percent slopes, cool	Prime farmland if irrigated
BcA	Baca silt loam, 0 to 3 percent slopes, cool	Prime farmland if irrigated
Bx	Boxcanyon silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
CC	Chacuaco-Capulin loams, 1 to 4 percent slopes	Prime farmland if irrigated
CpB	Calemore silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
CpC	Capulin loam, 1 to 6 percent slopes	Prime farmland if irrigated
FcC	Fort loam, 3 to 5 percent slopes	Prime farmland if irrigated
FtC	Olnest loam, 1 to 6 percent slopes	Prime farmland if irrigated
HvA	Haversid silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
Kw	Kandrix loam, 1 to 6 percent slopes	Prime farmland if irrigated
Lb	La Brier silty clay loam, 0 to 3 percent slopes	Prime farmland if irrigated
MnA	Manzanst silty clay loam, 0 to 1 percent slopes	Prime farmland if irrigated
MnB	Manzanst silty clay loam, 1 to 3 percent slopes	Prime farmland if irrigated
MnW	Aquic Haplustalfs, 0 to 3 percent slopes	Prime farmland if irrigated
MoB	Mauricanyon loam, 0 to 2 percent slopes, dry	Prime farmland if irrigated
MzA	Manzanola silty clay loam, 0 to 1 percent slopes	Prime farmland if irrigated
MzB	Manzanola silty clay loam, 1 to 4 percent slopes	Prime farmland if irrigated
Rc	Raku silt loam, 0 to 2 percent slopes	Prime farmland if irrigated
TbA	Trementina silt loam, 0 to 2 percent slopes	Prime farmland if irrigated
TnB	Trementina silt loam, 0 to 2 percent slopes, dry	Prime farmland if irrigated

Table 6.--Prime and other important farmland--continued

Map symbol	Map unit name	Farmland Classification
To	Torreon silt loam, 1 to 4 percent slopes	Prime farmland if irrigated
Wa	Wapiti loam, 0 to 3 percent slopes	Prime farmland if irrigated
WC	Plughat-Villegreen complex, 1 to 4 percent slopes	Prime farmland if irrigated
WeB	Wiley silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
WyB	Wilid silt loam, 0 to 3 percent slopes	Prime farmland if irrigated
AnB	Ascalon sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
AsB	Ascalon sandy loam, 0 to 3 percent slopes, overblown	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
GgB	Glenberg fine sandy loam, 0 to 3 percent slopes, occasionally flooded	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
Hn	Hoehne fine sandy loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
OyB	Olnest sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
OyC	Olnest sandy loam, 3 to 7 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
RyC	Ryegate sandy loam, 1 to 8 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
Sn	Sitcan fine sandy loam, 1 to 4 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
VoB	Vona sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60



Table 6.--Prime and other important farmland--continued

Map symbol	Map unit name	Farmland Classification
YaA	Yattle fine sandy loam, 0 to 1 percent slopes	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

Table 7.--Ecological sites and characteristic native vegetation

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
AA: Ayon-----	Basalt Breaks	Favorable	2,000	sideoats grama	20		---	---
		Normal	1,200	blue grama	15			
		Unfavorable	600	little bluestem	15			
				big bluestem	10			
				true mountain mahogany	7			
				western wheatgrass	7			
				Gambel's oak	5			
				oneseed juniper	5			
				other perennial forbs	5			
				American vetch	2			
Apache-----	Shallow Foothill	Favorable	1,000	little bluestem	15		---	---
		Normal	700	sideoats grama	15			
		Unfavorable	350	western wheatgrass	15			
				blue grama	10			
				true mountain mahogany	10			
				mountain muhly	7			
				New Mexico feathergrass	5			
				needleandthread	5			
				other perennial forbs	3			
				twoneedle pinyon	3			
				Gambel's oak	2			
				oneseed juniper	2			
				Rocky Mountain juniper	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
AC:								
Ayon-----	Basalt Breaks	Favorable	2,000	sideoats grama	20		---	---
		Normal	1,200	blue grama	15			
		Unfavorable	600	little bluestem	15			
				big bluestem	10			
				true mountain mahogany	7			
				western wheatgrass	7			
				Gambel's oak	5			
				oneseed juniper	5			
				other perennial forbs	5			
				American vetch	2			
Capulin-----	Basalt Loam	Favorable	1,700	blue grama	30		---	---
		Normal	1,150	western wheatgrass	25			
		Unfavorable	500	fourwing saltbush	5			
				green needlegrass	5			
				other perennial forbs	5			
				sideoats grama	5			
				winterfat	5			
				American vetch	2			
				bottlebrush squirreltail	2			
				yucca	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
AcC:								
Acantilado-----	Loamy (formerly Loamy Plains)	Favorable	1,600	blue grama	30		---	---
		Normal	1,100	western wheatgrass	25			
		Unfavorable	600	fourwing saltbush	5			
				galleta	5			
				green needlegrass	5			
				other perennial forbs	5			
				sideoats grama	5			
				winterfat	4			
				black grama	3			
				American vetch	2			
				bottlebrush squirreltail	2			
				sand dropseed	2			
				yucca	1			
AnB:								
Ascalon-----	Sandy (formerly Sandy Plains)	Favorable	2,300	blue grama	20		---	---
		Normal	1,700	prairie sandreed	20			
		Unfavorable	850	sand bluestem	15			
				little bluestem	5			
				needleandthread	5			
				switchgrass	5			
				western wheatgrass	5			
				western sandcherry	4			
				sand dropseed	3			
				sideoats grama	3			
				sun sedge	3			
				American vetch	2			
				dotted gayfeather	2			
				spreading buckwheat	2			
				sand sagebrush	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Ap:								
Apache-----	Shallow Foothill	Favorable	1,000	little bluestem	15		---	---
		Normal	700	sideoats grama	15			
		Unfavorable	350	western wheatgrass	15			
				blue grama	10			
				true mountain mahogany	10			
				mountain muhly	7			
				New Mexico feathergrass	5			
				needleandthread	5			
				other perennial forbs	3			
				twoneedle pinyon	3			
				Gambel's oak	2			
				oneseed juniper	2			
				Rocky Mountain juniper	2			
AR:								
Calcidic	Basalt Breaks	Favorable	2,200	sideoats grama	20		---	---
argiustolls----		Normal	1,200	New Mexico feathergrass	15			
		Unfavorable	800	little bluestem	15			
				mountain mahogany	10			
				Gambel's oak	7			
				other perennial forbs	5			
				oneseed juniper	4			
				mountain muhly	3			
				twoneedle pinyon	3			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
AsB:								
Ascalon-----	Sandy (formerly Sandy Plains)	Favorable	2,300	blue grama	20		---	---
		Normal	1,700	prairie sandreed	20			
		Unfavorable	850	sand bluestem	15			
				little bluestem	5			
				needleandthread	5			
				switchgrass	5			
				western wheatgrass	5			
				western sandcherry	4			
				sand dropseed	3			
				sideoats grama	3			
				sun sedge	3			
				American vetch	2			
				dotted gayfeather	2			
				spreading buckwheat	2			
				sand sagebrush	1			
AV:								
Aguilar-----	Salt Flat	Favorable	1,500	alkali sacaton	30		---	---
		Normal	1,000	western wheatgrass	20			
		Unfavorable	500	blue grama	15			
				fourwing saltbush	10			
				galleta	5			
				greasewood	3			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
AV:								
Beckton-----	Salt Flat	Favorable	1,500	alkali sacaton	30		---	---
		Normal	1,000	western wheatgrass	20			
		Unfavorable	500	blue grama	15			
				fourwing saltbush	10			
				alkali muhly	5			
				galleta	5			
				greasewood	3			
				American vetch	2			
AvC:								
Aguilar-----	Alkaline Plains	Favorable	1,500	alkali sacaton	30		---	---
		Normal	1,200	western wheatgrass	20			
		Unfavorable	500	blue grama	15			
				fourwing saltbush	10			
				galleta	5			
				winterfat	5			
				greasewood	3			
				American vetch	2			
AW:								
Allens park----	Pseudotsuga menziesii-Pinus	Favorable	---	mountain muhly		20	Rocky Mountain Douglas fir	65
	ponderosa/Festuca arizonica	Normal	---	Arizona fescue		15	white fir	65
		Unfavorable	---	Parry's danthonia		10	ponderosa pine	54
				common juniper		5		
				Gambel's oak		5		
				kinnikinnick		5		
				little bluestem		5		
				muttongrass		5		
				nodding brome		5		
				pine dropseed		5		
				Sandberg bluegrass		5		



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
AW:								
Wahatoya-----	Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica	Favorable	---	mountain muhly		20	Rocky Mountain Douglas fir	65
		Normal	---	Arizona fescue		15	white fir	65
		Unfavorable	---	nodding brome		10	ponderosa pine	54
				Parry's danthonia		10		
				common juniper		5		
				elk sedge		5		
				Gambel's oak		5		
				muttongrass		5		
				pine dropseed		5		
				Sandberg bluegrass		5		
				kinnikinnick		3		
				fringed sagewort		2		
BaA:								
Baca-----	Loamy (formerly Loamy Plains)	Favorable	1,800	blue grama	30		---	---
		Normal	1,300	western wheatgrass	25			
		Unfavorable	600	green needlegrass	10			
				buffalograss	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	2			
				sand dropseed	2			
				scarlet globemallow	2			
				sun sedge	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
BaB:								
Bacid-----	Loamy	Favorable	1,250	blue grama	30		---	---
		Normal	850	western wheatgrass	25			
		Unfavorable	400	fourwing saltbush	5			
				galleta	5			
				green needlegrass	5			
				winterfat	5			
				sideoats grama	3			
				American vetch	2			
				dotted gayfeather	2			
BaC:								
Baca-----	Loamy (formerly Loamy Plains)	Favorable	1,600	blue grama	30		---	---
		Normal	1,100	western wheatgrass	25			
		Unfavorable	800	green needlegrass	10			
				buffalograss	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	2			
				sand dropseed	2			
				scarlet globemallow	2			
				sun sedge	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
BcA:								
Baca-----	Loamy (formerly Loamy Plains)	Favorable	1,800	blue grama	30		---	---
		Normal	1,300	western wheatgrass	25			
		Unfavorable	600	green needlegrass	10			
				buffalograss	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	2			
				sand dropseed	2			
				scarlet globemallow	2			
				sun sedge	2			
Bk:								
Fallriver-----	Engelmann's spruce-Subalpine fir	Favorable	---	grouse whortleberry		30	subalpine fir	56
		Normal	---	bluegrass		10	Engelmann's spruce	52
		Unfavorable	---	elk sedge		10		
				mountain brome		10		
				Thurber's fescue		10		
				common juniper		5		
				muttongrass		5		
				russet buffaloberry		5		
				Woods' rose		5		
BnA:								
Bacid-----	Clayey	Favorable	1,100	western wheatgrass	35		---	---
		Normal	750	blue grama	20			
		Unfavorable	300	fourwing saltbush	10			
				galleta	10			
				green needlegrass	7			
				alkali sacaton	5			
				winterfat	5			
				American vetch	3			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
BT:								
Barela-----	Loamy Park	Favorable	2,400	Arizona fescue	25		---	---
		Normal	1,600	Parry's danthonia	20			
		Unfavorable	800	mountain muhly	15			
				western wheatgrass	10			
				fringed sagewort	5			
				mountain brome	5			
				Sandberg bluegrass	5			
				Letterman's needlegrass	3			
				American vetch	2			
				prairie junegrass	2			
Raton-----	Shallow Loam	Favorable	1,000	Arizona fescue	25		---	---
		Normal	700	mountain muhly	20			
		Unfavorable	500	Parry's danthonia	10			
				western wheatgrass	7			
				Gambel's oak	5			
				other perennial forbs	5			
				pine dropseed	5			
				Sandberg bluegrass	5			
				true mountain mahogany	5			
				nodding brome	3			
				fringed sagewort	2			
				muttongrass	2			
				prairie junegrass	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
BwA:								
Bloom-----	Salt Meadow	Favorable	3,700	alkali sacaton	35		---	---
		Normal	2,600	switchgrass	20			
		Unfavorable	1,500	western wheatgrass	15			
				prairie cordgrass	10			
				alkali bluegrass	5			
				sedge	5			
				vine mesquite	5			
				Baltic rush	2			
Bx:								
Boxcanyon-----	Loamy (formerly Loamy Plains)	Favorable	1,700	blue grama	30		---	---
		Normal	1,250	western wheatgrass	25			
		Unfavorable	550	green needlegrass	10			
				winterfat	5			
				sand dropseed	3			
				American vetch	2			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
CaD:								
Razor-----	Clayey	Favorable	1,100	western wheatgrass	35		---	---
		Normal	750	blue grama	20			
		Unfavorable	300	fourwing saltbush	10			
				galleta	10			
				green needlegrass	7			
				alkali sacaton	5			
				winterfat	5			
				American vetch	3			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
CC:								
Chacuaco-----	Loamy (formerly Loamy Plains)	Favorable	1,700	blue grama	30		---	---
		Normal	1,250	western wheatgrass	20			
		Unfavorable	550	green needlegrass	7			
				fourwing saltbush	5			
				winterfat	5			
				bottlebrush squirreltail	3			
				little bluestem	3			
				sand dropseed	3			
				American vetch	2			
				purple prairieclover	2			
				scarlet globemallow	2			
				sideoats grama	2			
Capulin-----	Loamy (formerly Loamy Plains)	Favorable	1,900	blue grama	30		---	---
		Normal	1,350	western wheatgrass	25			
		Unfavorable	600	fourwing saltbush	5			
				green needlegrass	5			
				other perennial forbs	5			
				sideoats grama	5			
				winterfat	5			
				American vetch	2			
				bottlebrush squirreltail	2			
				yucca	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
CD:								
Chacuaco-----	Loamy (formerly Loamy Plains)	Favorable	1,700	blue grama	30		---	---
		Normal	1,150	western wheatgrass	20			
		Unfavorable	500	green needlegrass	7			
				fourwing saltbush	5			
				winterfat	5			
				bottlebrush squirreltail	3			
				little bluestem	3			
				sand dropseed	3			
				American vetch	2			
				purple prairieclover	2			
				scarlet globemallow	2			
				sideoats grama	2			
Dalero-----	Sandstone Breaks	Favorable	1,550	little bluestem	15		---	---
		Normal	1,050	prairie sandreed	15			
		Unfavorable	650	sideoats grama	12			
				blue grama	10			
				sand bluestem	10			
				needleandthread	5			
				big bluestem	3			
				chokecherry	3			
				golden currant	2			
				prairie junegrass	2			
				purple prairieclover	2			
				western wheatgrass	2			
				spreading buckwheat	1			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Co:								
Collegiate-----	Mountain Meadow	Favorable	4,200	Nebraska sedge	25		---	---
		Normal	3,400	tufted hairgrass	20			
		Unfavorable	2,400	water sedge	10			
				slender wheatgrass	7			
				western wheatgrass	7			
				Baltic rush	5			
				other perennial forbs	5			
				smallwing sedge	5			
				willow	5			
				shrubby cinquefoil	3			
				Rocky Mountain iris	2			
CpA:								
Calemore-----	Loamy (formerly Loamy Plains)	Favorable	1,600	blue grama	30		---	---
		Normal	1,100	western wheatgrass	25			
		Unfavorable	800	green needlegrass	10			
				winterfat	5			
				American vetch	3			
				buffalograss	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sedge	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
CpB:								
Calemore-----	Loamy (formerly Loamy Plains)	Favorable	1,900	blue grama	30		---	---
		Normal	1,350	western wheatgrass	25			
		Unfavorable	600	green needlegrass	10			
				winterfat	5			
				American vetch	3			
				buffalograss	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sedge	2			
CpC:								
Capulin-----	Basalt Loam	Favorable	1,700	blue grama	30		---	---
		Normal	1,200	western wheatgrass	25			
		Unfavorable	600	green needlegrass	7			
				other perennial forbs	5			
				sideoats grama	5			
				winterfat	5			
				fourwing saltbush	3			
				American vetch	2			
				bottlebrush squirreltail	2			
				yucca	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
CpT:								
Capulin-----	Basalt Loam	Favorable	1,700	blue grama	30		---	---
		Normal	1,200	western wheatgrass	25			
		Unfavorable	600	green needlegrass	7			
				other perennial forbs	5			
				sideoats grama	5			
				winterfat	5			
				fourwing saltbush	3			
				American vetch	2			
				bottlebrush squirreltail	2			
				yucca	1			
Torreón-----	Clayey Foothill	Favorable	2,300	western wheatgrass	30		---	---
		Normal	1,500	blue grama	20			
		Unfavorable	700	New Mexico feathergrass	10			
				big bluestem	5			
				sideoats grama	5			
				winterfat	5			
				little bluestem	3			
				true mountain mahogany	3			
				Gambel's oak	2			
				oneseed juniper	2			
				other perennial forbs	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
Ct: Breece-----	Ponderosa Loam	Favorable	2,000	mountain muhly	15		---	---
		Normal	1,500	Parry's oatgrass	10			
		Unfavorable	800	big bluestem	10			
				western wheatgrass	10			
				sideoats grama	8			
				little bluestem	7			
				blue grama	5			
				bluegrass	5			
				fringed sagewort	5			
				other perennial forbs	5			
				other shrubs	5			
				needleandthread	3			
				prairie junegrass	3			
				sun sedge	2			
CwC: Cumulic cryaquolls----	Mountain Meadow	Favorable	4,000	tufted hairgrass	25		---	---
		Normal	3,000	Nebraska sedge	20			
		Unfavorable	2,000	other perennial grasses	10			
				slender wheatgrass	10			
				water sedge	10			
				Baltic rush	5			
				willow	5			
				shrubby cinquefoil	3			
				Rocky Mountain iris	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
DaE:								
Dalrose-----	Sandstone Breaks	Favorable	1,550	little bluestem	15		---	---
		Normal	1,050	prairie sandreed	15			
		Unfavorable	650	sideoats grama	12			
				blue grama	10			
				sand bluestem	10			
				needleandthread	5			
				big bluestem	3			
				chokecherry	3			
				golden currant	2			
				prairie junegrass	2			
				purple prairieclover	2			
				western wheatgrass	2			
				spreading buckwheat	1			
De:								
Davtone-----	Subalpine Loam	Favorable	3,200	Thurber's fescue	25		---	---
		Normal	2,500	Parry's danthonia	20			
		Unfavorable	1,800	Arizona fescue	10			
				western wheatgrass	10			
				elk sedge	5			
				mountain brome	5			
				mountain muhly	5			
				shrubby cinquefoil	5			
				slender wheatgrass	5			
				showy cinquefoil	2			
				fringed sagewort	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
DFV:								
Fuera-----	Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica	Favorable	---	mountain muhly		20	white fir	60
		Normal	---	Arizona fescue		15	ponderosa pine	52
		Unfavorable	---	nodding brome		10	Rocky Mountain Douglas fir	48
				Parry's danthonia		10		
				bluegrass		5		
				common juniper		5		
				elk sedge		5		
				Gambel's oak		5		
				kinnikinnick		5		
				pine dropseed		5		
				prairie junegrass		5		
Dargol-----	Pseudotsuga menziesii-Pinus ponderosa/Festuca arizonica	Favorable	---	mountain muhly		20	white fir	60
		Normal	---	Arizona fescue		15	ponderosa pine	52
		Unfavorable	---	nodding brome		10	Rocky Mountain Douglas fir	50
				Parry's danthonia		10		
				common juniper		5		
				elk sedge		5		
				Gambel's oak		5		
				kinnikinnick		5		
				pine dropseed		5		
				prairie junegrass		5		
				western wheatgrass		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
DFV:								
Vamer-----	Pinus ponderosa-Juniperus scopulorum/Quercus Gambelii	Favorable	---	mountain muhly		20	ponderosa pine	50
		Normal	---	Arizona fescue		15	Rocky Mountain Douglas fir	40
		Unfavorable	---	nodding brome		10	white fir	40
				western wheatgrass		10		
				Gambel's oak		5		
				little bluestem		5		
				Parry's danthonia		5		
				pine dropseed		5		
				prairie junegrass		5		
DH:								
Davtone-----	Loamy Park	Favorable	2,200	Arizona fescue	25		---	---
		Normal	1,600	Parry's danthonia	20			
		Unfavorable	800	mountain muhly	15			
				western wheatgrass	10			
				fringed sagewort	5			
				mountain brome	5			
				Sandberg bluegrass	5			
				Letterman's needlegrass	3			
				griffith wheatgrass	3			
				American vetch	2			
				prairie junegrass	2			
Histic								
cryaquolls----	Mountain Meadow	Favorable	4,500	tufted hairgrass	30		---	---
		Normal	3,300	Nebraska sedge	25			
		Unfavorable	2,000	slender wheatgrass	10			
				water sedge	10			
				alpine timothy	5			
				Baltic rush	5			
				shrubby cinquefoil	3			
				Rocky Mountain iris	2			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
Dm:								
Demayo-----	Shallow Foothill	Favorable	1,100	little bluestem	15		---	---
		Normal	750	sideoats grama	15			
		Unfavorable	400	western wheatgrass	15			
				blue grama	10			
				true mountain mahogany	10			
				mountain muhly	7			
				New Mexico feathergrass	5			
				needleandthread	5			
				other perennial forbs	3			
				twoneedle pinyon	3			
				Gambel's oak	2			
				oneseed juniper	2			
				Rocky Mountain juniper	2			
Ds:								
Des moines-----	Ponderosa Loam	Favorable	---	Arizona fescue		20	ponderosa pine	42
		Normal	---	blue grama		15		
		Unfavorable	---	Parry's danthonia		15		
				bluegrass		10		
				Gambel's oak		10		
				mountain muhly		10		
				other perennial forbs		5		
				true mountain mahogany		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
Dt:								
Davtone-----	Loamy Park	Favorable	2,200	Arizona fescue	25		---	---
		Normal	1,600	Parry's danthonia	20			
		Unfavorable	800	mountain muhly	15			
				western wheatgrass	10			
				fringed sagewort	5			
				mountain brome	5			
				Sandberg bluegrass	5			
				Letterman's needlegrass	3			
				griffith wheatgrass	3			
				American vetch	2			
				prairie junegrass	2			
Dv:								
Feterita-----	Plains Swale	Favorable	1,900	western wheatgrass	65		---	---
		Normal	1,300	blue grama	10			
		Unfavorable	800	green needlegrass	7			
				sun sedge	5			
				American vetch	3			
				buffalograss	3			
				winterfat	2			
Ec:								
Eguaje-----	Basalt Breaks	Favorable	2,400	little bluestem	20		---	---
		Normal	1,400	sideoats grama	20			
		Unfavorable	800	blue grama	15			
				New Mexico feathergrass	10			
				needleandthread	8			
				true mountain mahogany	7			
				yellow Indiangrass	3			
				bottlebrush squirreltail	2			
				oneseed juniper	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
Ec:								
Demayo-----	Shallow Foothill	Favorable	1,100	little bluestem	15		---	---
		Normal	750	sideoats grama	15			
		Unfavorable	400	western wheatgrass	15			
				blue grama	10			
				true mountain mahogany	10			
				mountain muhly	7			
				New Mexico feathergrass	5			
				needleandthread	5			
				other perennial forbs	3			
				twoneedle pinyon	3			
				Gambel's oak	2			
				oneseed juniper	2			
				Rocky Mountain juniper	2			
EL:								
Ellicott-----	Sandy Bottomland	Favorable	2,200	Nebraska sedge	15		---	---
		Normal	1,600	prairie cordgrass	10			
		Unfavorable	1,000	switchgrass	10			
				plains cottonwood	7			
				canada wildrye	5			
				little bluestem	5			
				sand bluestem	5			
				sand dropseed	5			
				yellow Indiangrass	5			
				sandbar willow	3			
				western wheatgrass	2			
				boxelder	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
EL:								
Las animas-----	Wet Meadow	Favorable	3,700	switchgrass	20		---	---
		Normal	2,600	Baltic rush	15			
		Unfavorable	1,500	western wheatgrass	15			
				Nebraska sedge	10			
				prairie cordgrass	10			
				reedgrass	5			
				sedge	5			
				vine mesquite	5			
				peachleaf willow	3			
				sandbar willow	3			
ES:								
Embargo-----	Subalpine Loam	Favorable	3,400	Thurber's fescue	25		---	---
		Normal	2,700	Parry's danthonia	20			
		Unfavorable	1,900	Arizona fescue	10			
				western wheatgrass	10			
				elk sedge	5			
				mountain brome	5			
				mountain muhly	5			
				shrubby cinquefoil	5			
				slender wheatgrass	5			
				showy cinquefoil	2			
				fringed sagewort	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
ES:								
Schwacheim-----	Shallow Subalpine	Favorable	2,200	Arizona fescue	15		---	---
		Normal	1,200	mountain muhly	10			
		Unfavorable	800	Parry's danthonia	10			
				Thurber's fescue	10			
				Columbia needlegrass	8			
				Letterman's needlegrass	7			
				muttongrass	7			
				gooseberry currant	5			
				mountain brome	5			
				slender wheatgrass	5			
				western wheatgrass	5			
				fringed sagewort	1			
				pussytoes	1			
FcB:								
Wapiti-----	Loamy	Favorable	1,200	blue grama	35		---	---
		Normal	900	western wheatgrass	20			
		Unfavorable	700	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
FcC: Fort-----	Loamy	Favorable	1,700	blue grama	30		---	---
		Normal	1,200	sideoats grama	10			
		Unfavorable	650	western wheatgrass	10			
				needleandthread	8			
				galleta	5			
				little bluestem	5			
				red threeawn	5			
				sand dropseed	5			
				fourwing saltbush	3			
				American vetch	2			
FcD: Fort-----	Sandy	Favorable	1,700	blue grama	30		---	---
		Normal	1,200	prairie sandreed	15			
		Unfavorable	650	sand bluestem	10			
				sideoats grama	8			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
Fp:								
Fishers-----	Pinus ponderosa/Festuca arizonica-Danthonia parryi	Favorable	1,700	Arizona fescue	25		ponderosa pine	42
		Normal	1,200	Parry's danthonia	20		white fir	39
		Unfavorable	600	mountain muhly	15			
				western wheatgrass	10			
				Gambel's oak	5			
				muttongrass	5			
				prairie junegrass	5			
				New Mexico locust	2			
				true mountain mahogany	2			
				fringed sagewort	1			
FtC:								
Olneat-----	Loamy (formerly Loamy Plains)	Favorable	2,000	prairie sandreed	15		---	---
		Normal	1,600	needleandthread	10			
		Unfavorable	1,000	sideoats grama	10			
				western wheatgrass	10			
				little bluestem	5			
				other perennial forbs	5			
				sand sagebrush	3			
				small soapweed	2			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
FuD:								
Bandarito-----	Clayey Foothill	Favorable	1,700	western wheatgrass	35		---	---
		Normal	1,300	blue grama	15			
		Unfavorable	700	green needlegrass	15			
				griffith wheatgrass	10			
				bluegrass	5			
				fourwing saltbush	3			
				mountain muhly	3			
				American vetch	2			
				fringed sagewort	2			
				purple prairieclover	2			
				winterfat	2			
FuE:								
Bandarito-----	Loamy Park	Favorable	2,200	Arizona fescue	25		---	---
		Normal	1,400	mountain muhly	20			
		Unfavorable	800	Parry's danthonia	15			
				western wheatgrass	10			
				Gambel's oak	5			
				Sandberg bluegrass	5			
				Letterman's needlegrass	3			
				American vetch	2			
				blue grama	2			
				fringed sagewort	2			
				prairie junegrass	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
FW:								
Bandarito-----	Loamy Park	Favorable	2,200	Arizona fescue	25		---	---
		Normal	1,400	mountain muhly	20			
		Unfavorable	800	Parry's danthonia	15			
				western wheatgrass	10			
				Gambel's oak	5			
				Sandberg bluegrass	5			
				Letterman's needlegrass	3			
				American vetch	2			
				blue grama	2			
				fringed sagewort	2			
				prairie junegrass	2			
Fishers-----	Pinus ponderosa/Festuca	Favorable	1,700	Arizona fescue	25		ponderosa pine	42
	arizonica-Danthonia parryi	Normal	1,200	Parry's danthonia	20		white fir	39
		Unfavorable	600	mountain muhly	15			
				western wheatgrass	10			
				Gambel's oak	5			
				muttongrass	5			
				prairie junegrass	5			
				New Mexico locust	2			
				true mountain mahogany	2			
				fringed sagewort	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
FyB:								
Furia-----	Mountain Meadow	Favorable	4,400	Nebraska sedge	25		---	---
		Normal	3,500	tufted hairgrass	20			
		Unfavorable	2,400	water sedge	10			
				western wheatgrass	10			
				slender wheatgrass	7			
				Baltic rush	5			
				other perennial forbs	5			
				willow	5			
				shrubby cinquefoil	3			
GA:								
Gulnare-----	Pinus ponderosa-Juniperus	Favorable	---	mountain muhly		20	ponderosa pine	50
	scopulorum/Quercus Gambelii	Normal	---	Arizona fescue		15		
		Unfavorable	---	Parry's danthonia		10		
				western wheatgrass		10		
				common juniper		5		
				kinnikinnick		5		
				little bluestem		5		
				nodding brome		5		
				pine dropseed		5		
				prairie junegrass		5		
				Sandberg bluegrass		3		
				Gambel's oak		2		
				muttongrass		2		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
GA:								
Allens park-----	Pinus ponderosa-Juniperus scopulorum/Quercus Gambelii	Favorable	---	mountain muhly		20	ponderosa pine	54
		Normal	---	Arizona fescue		15	Rocky Mountain Douglas fir	40
		Unfavorable	---	Parry's danthonia		10		
				common juniper		5		
				Gambel's oak		5		
				kinnikinnick		5		
				little bluestem		5		
				muttongrass		5		
				nodding brome		5		
				pine dropseed		5		
				Sandberg bluegrass		5		
GC:								
Groomer-----	Subalpine Loam	Favorable	3,200	Thurber's fescue	25		---	---
		Normal	2,500	Parry's danthonia	20			
		Unfavorable	1,800	Arizona fescue	10			
				western wheatgrass	10			
				elk sedge	5			
				mountain brome	5			
				mountain muhly	5			
				shrubby cinquefoil	5			
				slender wheatgrass	5			
				showy cinquefoil	2			
				fringed sagewort	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
GC:								
Cucharas-----	Loamy Park	Favorable	2,000	Arizona fescue	25		---	---
		Normal	1,500	mountain muhly	20			
		Unfavorable	800	Parry's danthonia	15			
				western wheatgrass	10			
				Gambel's oak	5			
				mountain brome	5			
				other perennial forbs	5			
				griffith wheatgrass	3			
				slender wheatgrass	3			
				American vetch	2			
				Thurber's fescue	2			
GgB:								
Glenberg-----	Sandy Bottomland	Favorable	2,200	sand bluestem	25		---	---
		Normal	1,500	prairie sandreed	15			
		Unfavorable	1,000	switchgrass	10			
				blue grama	5			
				buckwheat	5			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				sand sagebrush	5			
				yellow Indiangrass	5			
				western wheatgrass	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
GmE: Aquic dystrocryepts--	Alpine Meadow	Favorable	3,000	willow	20		---	---
		Normal	2,800	kobresia	15			
		Unfavorable	2,000	tufted hairgrass	15			
				arctic bluegrass	7			
				alpine clover	5			
				alpine timothy	5			
				other perennial forbs	5			
				sedge	5			
				cinquefoil	3			
				Parry's clover	3			
				shrubby cinquefoil	2			
Gn: Angostura-----	Engelmann's spruce-Subalpine fir	Favorable	---	grouse whortleberry		30	Engelmann's spruce	55
		Normal	---	bluegrass		10	subalpine fir	54
		Unfavorable	---	nodding brome		10	Rocky Mountain Douglas fir	50
				Arizona fescue		5		
				common juniper		5		
				Oregongrape		5		
				russet buffaloberry		5		
				Thurber's fescue		5		
				Woods' rose		5		
GP: Pits-----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
GR:								
Gulnare-----	Pinus ponderosa-Juniperus scopulorum/Quercus Gambelii	Favorable	---	mountain muhly		20	ponderosa pine	50
		Normal	---	Arizona fescue		15		
		Unfavorable	---	Parry's danthonia		10		
				western wheatgrass		10		
				common juniper		5		
				kinnikinnick		5		
				little bluestem		5		
				nodding brome		5		
				pine dropseed		5		
				prairie junegrass		5		
				Sandberg bluegrass		3		
				Gambel's oak		2		
				muttongrass		2		
Hn:								
Hoehne-----	Sandy Bottomland	Favorable	2,200	sand bluestem	25		---	---
		Normal	1,600	prairie sandreed	15			
		Unfavorable	1,000	switchgrass	10			
				blue grama	5			
				buckwheat	5			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				sand sagebrush	5			
				yellow Indiangrass	5			
				western wheatgrass	2			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
HvA:								
Haversid-----	Saline Overflow	Favorable	2,500	alkali sacaton	30		---	---
		Normal	1,500	western wheatgrass	20			
		Unfavorable	700	fourwing saltbush	13			
				blue grama	10			
				vine mesquite	7			
				galleta	5			
				switchgrass	5			
				American vetch	3			
HyD:								
Humbar Springs---	Gravel Breaks	Favorable	1,400	little bluestem	20		---	---
		Normal	950	sideoats grama	20			
		Unfavorable	500	blue grama	10			
				big bluestem	5			
				needleandthread	5			
				prairie sandreed	5			
				switchgrass	5			
				western wheatgrass	5			
				dotted gayfeather	2			
				purple prairieclover	2			
				skunkbush sumac	2			
				winterfat	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
K2D:								
Kimera-----	Loamy	Favorable	1,200	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			
Chicosa-----	Gravel Breaks	Favorable	1,200	sideoats grama	30		---	---
		Normal	750	little bluestem	20			
		Unfavorable	350	blue grama	15			
				big bluestem	5			
				galleta	5			
				needleandthread	5			
				fourwing saltbush	3			
				hairy grama	3			
				western wheatgrass	3			
				purple prairieclover	2			
				yucca	2			
KI:								
Kandrix-----	Loamy (formerly Loamy Plains)	Favorable	1,700	blue grama	35		---	---
		Normal	1,150	western wheatgrass	25			
		Unfavorable	500	green needlegrass	7			
				winterfat	5			
				sand dropseed	3			
				American vetch	2			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
KI:								
Chicosa-----	Gravel Breaks	Favorable	1,100	little bluestem	20		---	---
		Normal	850	sideoats grama	20			
		Unfavorable	600	blue grama	10			
				big bluestem	5			
				needleandthread	5			
				other perennial forbs	5			
				prairie sandreed	5			
				switchgrass	5			
				western wheatgrass	5			
				dotted gayfeather	2			
				purple prairieclover	2			
				skunkbush sumac	2			
				winterfat	2			
Km:								
Kimera-----	Loamy	Favorable	1,250	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
KmC: Wilid-----	Loamy	Favorable	1,200	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			
Kimera-----	Loamy	Favorable	1,200	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			
KO: Kimera-----	Sandy	Favorable	1,650	blue grama	30		---	---
		Normal	1,150	prairie sandreed	15			
		Unfavorable	600	sand bluestem	10			
				sideoats grama	8			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
KO:								
Oterodry-----	Sandy	Favorable	1,650	blue grama	35		---	---
		Normal	1,150	prairie sandreed	10			
		Unfavorable	600	sand bluestem	7			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				sideoats grama	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				sand sagebrush	3			
				sun sedge	3			
				American vetch	2			
				spreading buckwheat	2			
Kw:								
Kandrix-----	Loamy (formerly Loamy Plains)	Favorable	1,700	blue grama	35		---	---
		Normal	1,150	western wheatgrass	25			
		Unfavorable	500	green needlegrass	7			
				fourwing saltbush	5			
				winterfat	5			
				sand dropseed	3			
				American vetch	2			
				black grama	2			
				purple prairieclover	2			
				scarlet globemallow	2			
				sedge	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
KwC:								
Kandrix-----	Loamy (formerly Loamy Plains)	Favorable	1,800	blue grama	35		---	---
		Normal	1,150	western wheatgrass	25			
		Unfavorable	500	green needlegrass	7			
				winterfat	5			
				sand dropseed	3			
				American vetch	2			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
Wiley-----	Loamy (formerly Loamy Plains)	Favorable	1,800	blue grama	30		---	---
		Normal	1,300	western wheatgrass	25			
		Unfavorable	600	green needlegrass	10			
				buffalograss	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	2			
				sand dropseed	2			
				scarlet globemallow	2			
				sun sedge	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
La:								
Lanola-----	Shallow Foothill	Favorable	900	little bluestem	15		---	---
		Normal	600	sideoats grama	15			
		Unfavorable	300	western wheatgrass	15			
				blue grama	10			
				true mountain mahogany	10			
				New Mexico feathergrass	5			
				Gambel's oak	5			
				mountain muhly	5			
				needleandthread	5			
				other perennial forbs	3			
				twoneedle pinyon	3			
				oneseed juniper	2			
				Rocky Mountain juniper	2			
Lb:								
La brier-----	Basalt Loam	Favorable	1,600	western wheatgrass	30		---	---
		Normal	1,200	blue grama	25			
		Unfavorable	800	American vetch	5			
				green needlegrass	5			
				needleandthread	5			
				other perennial forbs	5			
				sideoats grama	5			
				winterfat	5			
				bottlebrush squirreltail	3			
				sand dropseed	2			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
Ld:								
Leadville-----	Pseudotsuga menziesii-Abies	Favorable	---	Arizona fescue		15	Rocky Mountain Douglas fir	60
	concolor/Quercus Gambelii-	Normal	---	common juniper		10	subalpine fir	60
	Symphoricarpos albus/Festuca	Unfavorable	---	elk sedge		10	Engelmann's spruce	52
	arizonica-Carex geyeri			mountain brome		10		
				bluegrass		5		
				boxleaf myrtle		5		
				grouse whortleberry		5		
				kinnikinnick		5		
				mountain muhly		5		
				muttongrass		5		
				russet buffaloberry		5		
LG:								
Manzanst-----	Clayey (formerly Clayey Plains)	Favorable	1,600	western wheatgrass	35		---	---
		Normal	1,000	blue grama	25			
		Unfavorable	500	fourwing saltbush	10			
				green needlegrass	10			
				American vetch	5			
				winterfat	5			
				buffalograss	2			
Ritoazul-----	Clayey (formerly Clayey Plains)	Favorable	1,500	western wheatgrass	35		---	---
		Normal	900	blue grama	25			
		Unfavorable	500	fourwing saltbush	10			
				green needlegrass	10			
				American vetch	5			
				buffalograss	5			
				winterfat	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
LH:								
Leadville-----	Pseudotsuga menziesii-Abies	Favorable	---	Arizona fescue		10	Rocky Mountain Douglas fir	60
	concolor/Quercus Gambelii-	Normal	---	boxleaf myrtle		10	subalpine fir	60
	Symphoricarpos albus/Festuca	Unfavorable	---	common juniper		10	Engelmann's spruce	50
	arizonica-Carex geyeri			elk sedge		10		
				mountain brome		10		
				Woods' rose		10		
				bluegrass		5		
				grouse whortleberry		5		
				muttongrass		5		
				other perennial forbs		5		
				russet buffaloberry		5		
Howlett-----	Pseudotsuga menziesii-Abies	Favorable	---	Arizona fescue		15	subalpine fir	60
	concolor/Quercus Gambelii-	Normal	---	mountain brome		15	Rocky Mountain Douglas fir	55
	Symphoricarpos albus/Festuca	Unfavorable	---	common juniper		10	Engelmann's spruce	50
	arizonica-Carex geyeri			elk sedge		10		
				russet buffaloberry		10		
				bluegrass		5		
				boxleaf myrtle		5		
				grouse whortleberry		5		
				Thurber's fescue		5		
				Woods' rose		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Lo:								
La brier-----	Basalt Loam	Favorable	1,900	western wheatgrass	30		---	---
		Normal	1,400	blue grama	25			
		Unfavorable	800	American vetch	5			
				green needlegrass	5			
				needleandthread	5			
				other perennial forbs	5			
				sideoats grama	5			
				winterfat	5			
				bottlebrush squirreltail	3			
				sand dropseed	2			
LoA:								
Limon-----	Salt Flat	Favorable	1,400	alkali sacaton	35		---	---
		Normal	1,000	blue grama	15			
		Unfavorable	400	western wheatgrass	15			
				fourwing saltbush	10			
				galleta	5			
				American vetch	3			
				greasewood	2			
LR:								
Fallriver-----	Engelmann's spruce-Subalpine fir	Favorable	---	grouse whortleberry		20	subalpine fir	56
		Normal	---	bluegrass		10	Engelmann's spruce	50
		Unfavorable	---	elk sedge		10		
				mountain brome		10		
				Thurber's fescue		10		
				common juniper		5		
				kinnikinnick		5		
				muttongrass		5		
				russet buffaloberry		5		
				Woods' rose		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
LRT:								
Lorencito-----	Pinus edulis-Juniperus scopulorum/Quercus Gambelii	Favorable	800	western wheatgrass	25		twoneedle pinyon	60
		Normal	500	little bluestem	10		Rocky Mountain juniper	---
		Unfavorable	200	needleandthread	10			
				sideoats grama	10			
				blue grama	5			
				Gambel's oak	5			
				Indian ricegrass	5			
				other perennial forbs	5			
				true mountain mahogany	5			
				American vetch	3			
Rombo-----	Shrubby Foothill	Favorable	2,100	mountain muhly	15		Gambel's oak	---
		Normal	1,600	mountain mahogany	12		ponderosa pine	---
		Unfavorable	900	Gambel's oak	10		twoneedle pinyon	---
				western wheatgrass	10			
				sideoats grama	7			
				big bluestem	5			
				griffith wheatgrass	5			
				little bluestem	5			
				blue grama	3			
				skunkbush sumac	3			
				American vetch	2			
				purple prairieclover	2			
				Rocky Mountain juniper	2			
				twoneedle pinyon	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
LRT:								
Sarcillo-----	Pinus edulis-Juniperus scopulorum/Quercus Gambelii	Favorable	1,000	little bluestem		15	twoneedle pinyon	90
		Normal	700	sideoats grama		15	oneseed juniper	---
		Unfavorable	300	true mountain mahogany		12	Rocky Mountain juniper	---
				mountain muhly		7		
				needleandthread		7		
				Gambel's oak		5		
				American vetch		3		
				fringed sagewort		2		
				other perennial forbs		2		
				prairie junegrass		2		
				purple prairieclover		2		
				western wheatgrass		2		
Ls:								
Las animas-----	Salt Meadow	Favorable	3,700	alkali sacaton	35		---	---
		Normal	2,600	switchgrass	20			
		Unfavorable	1,500	western wheatgrass	15			
				prairie cordgrass	10			
				alkali bluegrass	5			
				sedge	5			
				vine mesquite	5			
				Baltic rush	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
LST:								
Lorencito-----	Pinus edulis-Juniperus scopulorum/Quercus Gambelii	Favorable	800	western wheatgrass	25		twoneedle pinyon	60
		Normal	500	little bluestem	10		Rocky Mountain juniper	---
		Unfavorable	200	needleandthread	10			
				sideoats grama	10			
				blue grama	5			
				Gambel's oak	5			
				Indian ricegrass	5			
				other perennial forbs	5			
				true mountain mahogany	5			
				American vetch	3			
Sarcillo-----	Pinus edulis-Juniperus scopulorum/Quercus Gambelii	Favorable	1,000	little bluestem		15	twoneedle pinyon	90
		Normal	700	sideoats grama		15	oneseed juniper	---
		Unfavorable	300	true mountain mahogany		12	Rocky Mountain juniper	---
				mountain muhly		7		
				needleandthread		7		
				Gambel's oak		5		
				American vetch		3		
				fringed sagewort		2		
				other perennial forbs		2		
				prairie junegrass		2		
				purple prairieclover		2		
				western wheatgrass		2		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
LST:								
Trujillo-----	Loamy Foothill	Favorable	1,600	western wheatgrass	30		---	---
		Normal	1,300	green needlegrass	20			
		Unfavorable	800	blue grama	10			
				bluegrass	5			
				mountain muhly	5			
				winterfat	5			
				needleandthread	3			
				other perennial forbs	3			
				American vetch	2			
				fourwing saltbush	2			
				fringed sagewort	2			
				prairie junegrass	2			
				sun sedge	2			
Lt:								
Littlepine-----	Pinus ponderosa-Juniperus	Favorable	1,000	mountain muhly		20	ponderosa pine	58
	scopulorum/Quercus Gambelii	Normal	800	Arizona fescue		15	Rocky Mountain Douglas fir	50
		Unfavorable	400	Parry's danthonia		15		
				nodding brome		10		
				bluegrass		5		
				Gambel's oak		5		
				pine dropseed		5		
				prairie junegrass		5		
				elk sedge		3		
				fringed sagewort		2		



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
LvD:								
Lorencito-----	Shaly Plains	Favorable	1,250	western wheatgrass	30		---	---
		Normal	850	blue grama	15			
		Unfavorable	450	green needlegrass	15			
				needleandthread	10			
				sideoats grama	10			
				winterfat	7			
				little bluestem	5			
				American vetch	3			
LW:								
Littlepine-----	Pinus ponderosa/Festuca	Favorable	---	mountain muhly		20	ponderosa pine	55
	arizonica-Danthonia parryi	Normal	---	Arizona fescue		15	Rocky Mountain Douglas fir	50
		Unfavorable	---	Parry's danthonia		15		
				nodding brome		10		
				bluegrass		5		
				Gambel's oak		5		
				pine dropseed		5		
				prairie junegrass		5		
				elk sedge		3		
				fringed sagewort		2		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
LW:								
Wahatoya-----	Pinus ponderosa/Festuca arizonica-Danthonia parryi	Favorable	---	mountain muhly		20	ponderosa pine	54
		Normal	---	Arizona fescue		15	Rocky Mountain Douglas fir	50
		Unfavorable	---	nodding brome		10		
				Parry's danthonia		10		
				common juniper		5		
				elk sedge		5		
				Gambel's oak		5		
				muttongrass		5		
				pine dropseed		5		
				Sandberg bluegrass		5		
				kinnikinnick		3		
				fringed sagewort		2		
MaB:								
Mauricanyon-----	Overflow	Favorable	2,600	western wheatgrass	25		---	---
		Normal	1,800	blue grama	20			
		Unfavorable	800	green needlegrass	15			
				big bluestem	5			
				other perennial forbs	5			
				winterfat	5			
				yellow Indiangrass	5			
				American vetch	3			
				buffalograss	3			
				fourwing saltbush	2			
				sand dropseed	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
MaW:								
Mauricanyon-----	Clayey (formerly Clayey Plains)	Favorable	2,000	blue grama	30		---	---
		Normal	1,450	western wheatgrass	25			
		Unfavorable	650	green needlegrass	15			
				sand dropseed	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
MD:								
Dumps-----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
Mf:								
Moran-----	Alpine Slopes	Favorable	2,200	kobresia	30		---	---
		Normal	1,500	other perennial forbs	15			
		Unfavorable	1,000	tufted hairgrass	10			
				willow	7			
				alpine bluegrass	5			
				purple reedgrass	5			
				sedge	5			
				arctic bluegrass	3			
				spike trisetum	3			
				wheatgrass	3			
				alpine sagebrush	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
MG:								
Tercio-----	Pseudotsuga menziesii-Abies concolor/Quercus Gambelii- Symphoricarpos albus/Festuca arizonica-Carex geyeri	Favorable Normal Unfavorable	--- --- ---	Thurber's fescue elk sedge Parry's danthonia Arizona fescue mountain brome buffaloberry common juniper other perennial forbs whortleleaf snowberry kinnikinnick rose		25 15 15 10 10 5 5 5 5 3 2	white fir Rocky Mountain Douglas fir Engelmann's spruce	70 60 50
Graneros-----	Pseudotsuga menziesii-Abies concolor/Quercus Gambelii- Symphoricarpos albus/Festuca arizonica-Carex geyeri	Favorable Normal Unfavorable	--- --- ---	Thurber's fescue elk sedge Parry's danthonia Arizona fescue mountain brome buffaloberry creeping juniper muttongrass other perennial forbs kinnikinnick Woods' rose		25 15 15 10 10 5 5 5 5 3 2	Rocky Mountain Douglas fir Engelmann's spruce white fir	60 50 45

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
MGR:								
Midway-----	Shaly Plains	Favorable	1,250	alkali sacaton	20		---	---
		Normal	850	western wheatgrass	20			
		Unfavorable	450	blue grama	15			
				sideoats grama	15			
				fourwing saltbush	10			
				green needlegrass	7			
				winterfat	5			
				little bluestem	3			
				American vetch	2			
Ritoazul-----	Clayey (formerly Clayey Plains)	Favorable	1,550	western wheatgrass	35		---	---
		Normal	1,000	blue grama	25			
		Unfavorable	500	fourwing saltbush	10			
				green needlegrass	10			
				American vetch	5			
				buffalograss	5			
				winterfat	5			
MI:								
Minqwet-----	Loamy (formerly Loamy Plains)	Favorable	1,600	blue grama	40		---	---
		Normal	1,200	western wheatgrass	20			
		Unfavorable	550	green needlegrass	5			
				winterfat	5			
				sand dropseed	3			
				bottlebrush squirreltail	2			
				rubber rabbitbrush	2			
				broom snakeweed	1			
				red threeawn	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
MI:								
Wiley-----	Loamy (formerly Loamy Plains)	Favorable	1,800	blue grama	30		---	---
		Normal	1,300	western wheatgrass	25			
		Unfavorable	600	green needlegrass	10			
				buffalograss	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	2			
				sand dropseed	2			
				scarlet globemallow	2			
				sun sedge	2			
MIK:								
Midway-----	Shaly Foothill	Favorable	1,250	alkali sacaton	20		---	---
		Normal	850	western wheatgrass	20			
		Unfavorable	450	blue grama	15			
				sideoats grama	15			
				fourwing saltbush	10			
				green needlegrass	7			
				winterfat	5			
				little bluestem	3			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
MIK:								
Chicosa-----	Gravelly Foothill	Favorable	1,000	little bluestem	20		---	---
		Normal	800	blue grama	15			
		Unfavorable	400	sideoats grama	15			
				needleandthread	10			
				prairie sandreed	7			
				other perennial forbs	5			
				true mountain mahogany	5			
				western wheatgrass	5			
				mountain muhly	3			
				plains muhly	3			
				fringed sagewort	2			
				Rocky Mountain juniper	2			
				small soapweed	1			
MnA:								
Manzanst-----	Clayey (formerly Clayey Plains)	Favorable	1,600	western wheatgrass	35		---	---
		Normal	1,100	blue grama	25			
		Unfavorable	500	fourwing saltbush	10			
				green needlegrass	10			
				American vetch	5			
				winterfat	5			
				buffalograss	2			
MnB:								
Manzanst-----	Clayey (formerly Clayey Plains)	Favorable	1,600	western wheatgrass	35		---	---
		Normal	1,100	blue grama	25			
		Unfavorable	500	fourwing saltbush	10			
				green needlegrass	10			
				American vetch	5			
				winterfat	5			
				buffalograss	2			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
MnW: Aquic haplustalfs----	Salt Meadow	Favorable	1,600	western wheatgrass	25		---	---
		Normal	1,100	blue grama	20			
		Unfavorable	800	alkali sacaton	15			
				green needlegrass	10			
				alkali muhly	5			
				fourwing saltbush	5			
				inland saltgrass	5			
MoA: Mauricanyon-----	Overflow	Favorable	2,800	western wheatgrass	35		---	---
		Normal	2,000	green needlegrass	20			
		Unfavorable	1,000	switchgrass	10			
				blue grama	5			
				sand dropseed	5			
				yellow Indiangrass	5			
				American vetch	3			
				fourwing saltbush	2			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
MoB: Mauricanyon-----	Loamy	Favorable	2,000	western wheatgrass	35		---	---
		Normal	1,450	green needlegrass	20			
		Unfavorable	650	blue grama	10			
				sand dropseed	5			
				winterfat	5			
				American vetch	3			
				buffalograss	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
MoR:								
Mion-----	Shaly Foothill	Favorable	800	western wheatgrass	20		---	---
		Normal	500	blue grama	15			
		Unfavorable	200	sideoats grama	15			
				little bluestem	10			
				big bluestem	5			
				fourwing saltbush	5			
				Gambel's oak	5			
				other perennial forbs	5			
				true mountain mahogany	5			
				winterfat	5			
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
MP:								
Midway-----	Shaly Plains	Favorable	1,250	alkali sacaton	20		---	---
		Normal	850	western wheatgrass	20			
		Unfavorable	450	blue grama	15			
				sideoats grama	15			
				fourwing saltbush	10			
				green needlegrass	7			
				winterfat	5			
				little bluestem	3			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
MP: Razor-----	Clayey	Favorable	1,200	western wheatgrass	35		---	---
		Normal	900	blue grama	20			
		Unfavorable	600	fourwing saltbush	10			
				galleta	10			
				green needlegrass	7			
				alkali sacaton	5			
				winterfat	5			
				American vetch	3			
MR: Mirror-----	Alpine Slopes	Favorable	2,000	kobresia	30		---	---
		Normal	1,400	other perennial forbs	15			
		Unfavorable	900	tufted hairgrass	10			
				willow	7			
				alpine bluegrass	5			
				purple reedgrass	5			
				sedge	5			
				arctic bluegrass	3			
				spike trisetum	3			
				wheatgrass	3			
				alpine sagebrush	1			
MvC: Manvel-----	Loamy	Favorable	1,150	blue grama	35		---	---
		Normal	750	western wheatgrass	20			
		Unfavorable	300	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
MyD:								
Midway-----	Shaly Plains	Favorable	1,200	alkali sacaton	20		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	400	blue grama	15			
				sideoats grama	15			
				fourwing saltbush	10			
				green needlegrass	7			
				winterfat	5			
				little bluestem	3			
				American vetch	2			
MzA:								
Manzanola-----	Saline Overflow	Favorable	2,500	alkali sacaton	30		---	---
		Normal	1,500	western wheatgrass	20			
		Unfavorable	750	fourwing saltbush	13			
				blue grama	10			
				vine mesquite	7			
				galleta	5			
				switchgrass	5			
				American vetch	3			
MzB:								
Manzanola-----	Clayey	Favorable	1,200	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
NM:								
Nopurg-----	Pseudotsuga menziesii-Abies	Favorable	---	Parry's danthonia		15	white fir	65
	concolor/Quercus Gambelii-	Normal	---	Thurber's fescue		15	Rocky Mountain Douglas fir	55
	Symphoricarpos albus/Festuca	Unfavorable	---	Arizona fescue		10	Engelmann's spruce	52
	arizonica-Carex geyeri			mountain brome		10		
				other perennial forbs		10		
				common juniper		5		
				elk sedge		5		
				grouse whortleberry		5		
				grouse whortleberry		5		
				mountain muhly		5		
				russet buffaloberry		5		
				Woods' rose		5		
Mitotes-----	Pseudotsuga menziesii-Abies	Favorable	---	Parry's danthonia		15	white fir	65
	concolor/Quercus Gambelii-	Normal	---	Thurber's fescue		15	Rocky Mountain Douglas fir	55
	Symphoricarpos albus/Festuca	Unfavorable	---	Arizona fescue		10	Engelmann's spruce	52
	arizonica-Carex geyeri			elk sedge		10		
				other perennial forbs		10		
				Woods' rose		10		
				common juniper		5		
				common snowberry		5		
				grouse whortleberry		5		
				mountain brome		5		
				mountain muhly		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
OeC:								
Otero-----	Sandy (formerly Sandy Plains)	Favorable	2,100	blue grama	30		---	---
		Normal	1,550	prairie sandreed	20			
		Unfavorable	750	needleandthread	5			
				sand bluestem	5			
				sideoats grama	5			
				switchgrass	5			
				western wheatgrass	5			
				little bluestem	3			
				sand dropseed	3			
				spreading buckwheat	3			
				sun sedge	3			
				American vetch	2			
				dotted gayfeather	2			
				sand sagebrush	2			
				western sandcherry	2			
OtD:								
Oterodry-----	Sandy	Favorable	1,650	blue grama	35		---	---
		Normal	1,150	prairie sandreed	10			
		Unfavorable	550	sand bluestem	7			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				sideoats grama	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				sand sagebrush	3			
				sun sedge	3			
				American vetch	2			
				spreading buckwheat	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
OyB:								
Olnest-----	Sandy (formerly Sandy Plains)	Favorable	2,200	blue grama	25		---	---
		Normal	1,650	prairie sandreed	20			
		Unfavorable	800	needleandthread	10			
				sand bluestem	7			
				little bluestem	5			
				switchgrass	5			
				western wheatgrass	5			
				sideoats grama	3			
				sun sedge	3			
				western sandcherry	3			
				American vetch	2			
				sand dropseed	2			
				sand sagebrush	2			
				spreading buckwheat	2			
				dotted gayfeather	1			
OyC:								
Olnest-----	Sandy (formerly Sandy Plains)	Favorable	2,200	blue grama	25		---	---
		Normal	1,650	prairie sandreed	20			
		Unfavorable	800	needleandthread	10			
				sand bluestem	7			
				little bluestem	5			
				switchgrass	5			
				western wheatgrass	5			
				sideoats grama	3			
				sun sedge	3			
				western sandcherry	3			
				American vetch	2			
				sand dropseed	2			
				sand sagebrush	2			
				spreading buckwheat	2			
				dotted gayfeather	1			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
PeD:								
Penrose-----	Limestone Breaks	Favorable	900	sideoats grama	20		---	---
		Normal	600	little bluestem	15			
		Unfavorable	300	big bluestem	10			
				switchgrass	10			
				blue grama	7			
				needleandthread	5			
				western wheatgrass	5			
				yellow Indiangrass	5			
				green needlegrass	3			
				winterfat	3			
				dotted gayfeather	2			
				purple prairieclover	2			
				skunkbush sumac	2			
PeF:								
Penrose-----	Limestone Breaks	Favorable	900	sideoats grama	20		---	---
		Normal	600	little bluestem	15			
		Unfavorable	300	big bluestem	10			
				switchgrass	10			
				blue grama	7			
				needleandthread	5			
				western wheatgrass	5			
				yellow Indiangrass	5			
				green needlegrass	3			
				winterfat	3			
				dotted gayfeather	2			
				purple prairieclover	2			
				skunkbush sumac	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
PeF:								
Midway-----	Shale Breaks	Favorable	1,250	alkali sacaton	20		---	---
		Normal	850	western wheatgrass	20			
		Unfavorable	450	blue grama	15			
				sideoats grama	15			
				fourwing saltbush	10			
				green needlegrass	7			
				winterfat	5			
				little bluestem	3			
				American vetch	2			
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
PM:								
Penrose-----	Limestone Breaks	Favorable	900	sideoats grama	20		---	---
		Normal	600	little bluestem	15			
		Unfavorable	300	big bluestem	10			
				switchgrass	10			
				blue grama	7			
				needleandthread	5			
				western wheatgrass	5			
				yellow Indiangrass	5			
				green needlegrass	3			
				winterfat	3			
				dotted gayfeather	2			
				purple prairieclover	2			
				skunkbush sumac	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
PM:								
Minnequa-----	Loamy	Favorable	1,150	blue grama	35		---	---
		Normal	750	western wheatgrass	20			
		Unfavorable	300	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			
PnD:								
Penrose-----	Limestone Breaks	Favorable	1,450	sideoats grama	20		---	---
		Normal	950	little bluestem	15			
		Unfavorable	550	big bluestem	10			
				switchgrass	10			
				blue grama	7			
				needleandthread	5			
				western wheatgrass	5			
				yellow Indiangrass	5			
				green needlegrass	3			
				winterfat	3			
				dotted gayfeather	2			
				purple prairieclover	2			
				skunkbush sumac	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
RaB:								
Ravine-----	Loamy	Favorable	1,150	blue grama	35		---	---
		Normal	750	western wheatgrass	20			
		Unfavorable	300	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			
RaC:								
Ritoazul-----	Clayey (formerly Clayey Plains)	Favorable	1,550	western wheatgrass	35		---	---
		Normal	1,000	blue grama	25			
		Unfavorable	500	fourwing saltbush	10			
				green needlegrass	10			
				American vetch	5			
				buffalograss	5			
				winterfat	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
RB:								
Raton-----	Shallow Loam	Favorable	1,000	Arizona fescue	25		---	---
		Normal	700	mountain muhly	20			
		Unfavorable	500	Parry's danthonia	10			
				western wheatgrass	7			
				Gambel's oak	5			
				other perennial forbs	5			
				pine dropseed	5			
				Sandberg bluegrass	5			
				true mountain mahogany	5			
				nodding brome	3			
				fringed sagewort	2			
				muttongrass	2			
				prairie junegrass	2			
Barela-----	Loamy Park	Favorable	2,400	Arizona fescue	25		---	---
		Normal	1,600	Parry's danthonia	20			
		Unfavorable	800	mountain muhly	15			
				western wheatgrass	10			
				fringed sagewort	5			
				mountain brome	5			
				Sandberg bluegrass	5			
				Letterman's needlegrass	3			
				American vetch	2			
				prairie junegrass	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Rc:								
Raku-----	Loamy (formerly Loamy Plains)	Favorable	1,900	blue grama	30		---	---
		Normal	1,350	western wheatgrass	25			
		Unfavorable	600	green needlegrass	10			
				buffalograss	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
RcA:								
Raku-----	Clayey (formerly Clayey Plains)	Favorable	1,600	western wheatgrass	35		---	---
		Normal	1,100	blue grama	25			
		Unfavorable	800	fourwing saltbush	10			
				green needlegrass	10			
				American vetch	5			
				winterfat	5			
				buffalograss	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Rd:								
Romound-----	Sandy	Favorable	700	blue grama	35		---	---
		Normal	550	prairie sandreed	10			
		Unfavorable	300	sand bluestem	7			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				sideoats grama	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				sand sagebrush	3			
				sun sedge	3			
				American vetch	2			
				spreading buckwheat	2			
RF:								
Rock outcrop----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
Rubble land-----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Rt:								
Raton-----	Shallow Loam	Favorable	1,000	Arizona fescue	25		---	---
		Normal	700	mountain muhly	20			
		Unfavorable	500	Parry's danthonia	10			
				western wheatgrass	7			
				Gambel's oak	5			
				other perennial forbs	5			
				pine dropseed	5			
				Sandberg bluegrass	5			
				true mountain mahogany	5			
				nodding brome	3			
				fringed sagewort	2			
				muttongrass	2			
				prairie junegrass	2			
RyC:								
Ryegate-----	Sandy (formerly Sandy Plains)	Favorable	2,200	blue grama	25		---	---
		Normal	1,650	prairie sandreed	20			
		Unfavorable	800	needleandthread	10			
				sand bluestem	7			
				little bluestem	5			
				switchgrass	5			
				western wheatgrass	5			
				sideoats grama	3			
				sun sedge	3			
				western sandcherry	3			
				American vetch	2			
				sand dropseed	2			
				sand sagebrush	2			
				spreading buckwheat	2			
				dotted gayfeather	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
RzD:								
Rizozo-----	Sandstone Breaks	Favorable	1,550	little bluestem	15		---	---
		Normal	1,050	prairie sandreed	15			
		Unfavorable	650	sideoats grama	12			
				blue grama	10			
				sand bluestem	10			
				needleandthread	5			
				big bluestem	3			
				chokecherry	3			
				golden currant	2			
				prairie junegrass	2			
				purple prairieclover	2			
				western wheatgrass	2			
				spreading buckwheat	1			
Sc:								
Schwacheim-----	Shallow Subalpine	Favorable	2,200	Arizona fescue	15		---	---
		Normal	1,200	mountain muhly	10			
		Unfavorable	800	Parry's danthonia	10			
				Thurber's fescue	10			
				Columbia needlegrass	8			
				Letterman's needlegrass	7			
				muttongrass	7			
				gooseberry currant	5			
				mountain brome	5			
				slender wheatgrass	5			
				western wheatgrass	5			
				fringed sagewort	1			
				pussytoes	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
ScR:								
Schwacheim-----	Shallow Subalpine	Favorable	2,200	Arizona fescue	15		---	---
		Normal	1,200	mountain muhly	10			
		Unfavorable	800	Parry's danthonia	10			
				Thurber's fescue	10			
				Columbia needlegrass	8			
				Letterman's needlegrass	7			
				muttongrass	7			
				gooseberry currant	5			
				mountain brome	5			
				slender wheatgrass	5			
				western wheatgrass	5			
				fringed sagewort	1			
				pussytoes	1			
SG:								
Ovmesa-----	Gypsum Breaks	Favorable	550	black grama	15		---	---
		Normal	350	blue grama	15			
		Unfavorable	200	New Mexico feathergrass	10			
				bigelow's sagebrush	10			
				galleta	10			
				sideoats grama	10			
				gyp dropseed	7			
				little bluestem	5			
				fourwing saltbush	3			
				winterfat	3			
				dotted gayfeather	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
SG:								
Romound-----	Sandy	Favorable	700	blue grama	35		---	---
		Normal	550	prairie sandreed	10			
		Unfavorable	300	sand bluestem	7			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				sideoats grama	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				sand sagebrush	3			
				sun sedge	3			
				American vetch	2			
				spreading buckwheat	2			
ShD:								
Shingle-----	Shaly Plains	Favorable	1,000	western wheatgrass	10		---	---
		Normal	550	fourwing saltbush	5			
		Unfavorable	300	Indian ricegrass	5			
				needleandthread	5			
				winterfat	5			
				other perennial forbs	3			
				pale wolfberry	2			
Penrose-----	Limestone Breaks	Favorable	500	true mountain mahogany	20		---	---
		Normal	400	little bluestem	10			
		Unfavorable	300	needlegrass	10			
				sideoats grama	10			
				bluegrass	5			
				fringed sagewort	5			
				juniper	5			
				prairie junegrass	5			
				twoneedle pinyon	5			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
SL:								
Scandard-----	Pseudotsuga menziesii-Abies concolor/Quercus Gambelii- Symphoricarpos albus/Festuca arizonica-Carex geyeri	Favorable	---	mountain muhly		20	Rocky Mountain Douglas fir	50
		Normal	---	Arizona fescue		15	white fir	30
		Unfavorable	---	mountain brome		15		
				Parry's danthonia		10		
				common juniper		5		
				fringed sagewort		5		
				Gambel's oak		5		
				kinnikinnick		5		
				Oregongrape		5		
Leadville-----	Pseudotsuga menziesii-Abies concolor/Quercus Gambelii- Symphoricarpos albus/Festuca arizonica-Carex geyeri	Favorable	---	Arizona fescue		15	Rocky Mountain Douglas fir	60
		Normal	---	common juniper		10	Engelmann's spruce	50
		Unfavorable	---	elk sedge		10	white fir	42
				mountain brome		10		
				bluegrass		5		
				boxleaf myrtle		5		
				grouse whortleberry		5		
				kinnikinnick		5		
				muttongrass		5		
				russet buffaloberry		5		
				Woods' rose		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
SM:								
Schamber-----	Gravel Breaks	Favorable	1,200	sideoats grama	30		---	---
		Normal	750	little bluestem	20			
		Unfavorable	350	blue grama	15			
				big bluestem	5			
				galleta	5			
				needleandthread	5			
				fourwing saltbush	3			
				hairy grama	3			
				western wheatgrass	3			
				purple prairieclover	2			
				yucca	2			
Midway-----	Shaly Plains	Favorable	1,250	alkali sacaton	20		---	---
		Normal	850	western wheatgrass	20			
		Unfavorable	450	blue grama	15			
				sideoats grama	15			
				fourwing saltbush	10			
				green needlegrass	7			
				winterfat	5			
				little bluestem	3			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Sn:								
Sitcan-----	Sandy	Favorable	1,800	blue grama	25		---	---
		Normal	1,250	prairie sandreed	15			
		Unfavorable	700	sand bluestem	15			
				needleandthread	7			
				fourwing saltbush	5			
				galleta	5			
				little bluestem	5			
				sand dropseed	5			
				western wheatgrass	5			
				spreading buckwheat	2			
				sand sagebrush	1			
SR:								
Saruche-----	Shrubby Foothill	Favorable	2,000	sideoats grama	15		---	---
		Normal	1,500	western wheatgrass	15			
		Unfavorable	800	Gambel's oak	10			
				little bluestem	10			
				needleandthread	10			
				big bluestem	5			
				griffith wheatgrass	5			
				mountain mahogany	5			
				twoneedle pinyon	3			
				Rocky Mountain juniper	2			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
SR:								
Rombo-----	Shrubby Foothill	Favorable	2,100	mountain muhly	15		---	---
		Normal	1,600	mountain mahogany	12			
		Unfavorable	900	Gambel's oak	10			
				western wheatgrass	10			
				sideoats grama	7			
				big bluestem	5			
				griffith wheatgrass	5			
				little bluestem	5			
				blue grama	3			
				skunkbush sumac	3			
				American vetch	2			
				purple prairieclover	2			
				Rocky Mountain juniper	2			
				twoneedle pinyon	1			
Sw:								
Molinaro-----	Loamy Foothill	Favorable	1,800	western wheatgrass	35		---	---
		Normal	1,300	blue grama	20			
		Unfavorable	700	green needlegrass	10			
				mountain muhly	5			
				other perennial forbs	5			
				sun sedge	5			
				needleandthread	3			
				fringed sagewort	2			
				prairie junegrass	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
TbA:								
Trementina-----	Loamy (formerly Loamy Plains)	Favorable	2,000	blue grama	30		---	---
		Normal	1,450	western wheatgrass	25			
		Unfavorable	650	green needlegrass	15			
				sand dropseed	5			
				winterfat	5			
				American vetch	3			
				buffalograss	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
TeE:								
Tecolote-----	Pinus ponderosa/Festuca	Favorable	---	mountain muhly		20	ponderosa pine	55
	arizonica-Danthonia parryi	Normal	---	Arizona fescue		15		
		Unfavorable	---	Parry's danthonia		10		
				bluegrass		5		
				common juniper		5		
				elk sedge		5		
				Gambel's oak		5		
				kinnikinnick		5		
				pine dropseed		5		
				prairie junegrass		5		
				fringed sagewort		2		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
TF:								
Torreón-----	Clayey Foothill	Favorable	1,650	western wheatgrass	35		---	---
		Normal	1,250	bluegrass	15			
		Unfavorable	800	green needlegrass	15			
				Sandberg bluegrass	7			
				fourwing saltbush	5			
				Indian ricegrass	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	3			
Fuera-----	Pinus ponderosa-Juniperus	Favorable	---	Arizona fescue		20	ponderosa pine	50
	scopulorum/Quercus Gambelii	Normal	---	mountain muhly		20	Rocky Mountain Douglas fir	48
		Unfavorable	---	muttongrass		10		
				pine dropseed		10		
				elk sedge		5		
				Gambel's oak		5		
				mountain mahogany		5		
				nodding brome		5		
				other perennial forbs		5		
				prairie junegrass		5		
				whortleleaf snowberry		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
TgD: Trujillo-----	Sandy Foothill	Favorable	2,400	big bluestem	15		---	---
		Normal	1,750	blue grama	10			
		Unfavorable	1,000	prairie sandreed	10			
				western wheatgrass	10			
				needleandthread	7			
				bluegrass	5			
				little bluestem	5			
				mountain muhly	5			
				other perennial forbs	5			
				sideoats grama	5			
				other shrubs	3			
				prairie junegrass	3			
				sun sedge	3			
				fringed sagewort	2			
				purple prairieclover	2			
TgE: Trujillo-----	Sandy Foothill	Favorable	2,000	big bluestem	15		---	---
		Normal	1,700	blue grama	10			
		Unfavorable	950	prairie sandreed	10			
				western wheatgrass	10			
				needleandthread	7			
				bluegrass	5			
				little bluestem	5			
				mountain muhly	5			
				other perennial forbs	5			
				sideoats grama	5			
				other shrubs	3			
				prairie junegrass	3			
				sun sedge	3			
				fringed sagewort	2			
				purple prairieclover	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
TL:								
Torreón-----	Clayey Foothill	Favorable	1,650	western wheatgrass	35		---	---
		Normal	1,250	bluegrass	15			
		Unfavorable	800	green needlegrass	15			
				Sandberg bluegrass	7			
				fourwing saltbush	5			
				Indian ricegrass	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	3			
Lorencito-----	Shaly Foothill	Favorable	850	western wheatgrass	25		---	---
		Normal	550	little bluestem	10			
		Unfavorable	250	needleandthread	10			
				sideoats grama	10			
				blue grama	5			
				Gambel's oak	5			
				Indian ricegrass	5			
				other perennial forbs	5			
				true mountain mahogany	5			
				American vetch	3			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
TmD:								
Trujillo-----	Loamy Foothill	Favorable	1,600	western wheatgrass	30		---	---
		Normal	1,300	green needlegrass	20			
		Unfavorable	800	blue grama	10			
				bluegrass	5			
				mountain muhly	5			
				winterfat	5			
				needleandthread	3			
				other perennial forbs	3			
				American vetch	2			
				fourwing saltbush	2			
				fringed sagewort	2			
				prairie junegrass	2			
				sun sedge	2			
TnA:								
Trementina-----	Clayey Foothill	Favorable	1,700	western wheatgrass	35		---	---
		Normal	1,450	blue grama	15			
		Unfavorable	700	green needlegrass	15			
				fourwing saltbush	5			
				American vetch	3			
				bluegrass	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
				winterfat	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
TnB:								
Trementina-----	Loamy	Favorable	2,000	blue grama	30		---	---
		Normal	1,450	western wheatgrass	25			
		Unfavorable	650	green needlegrass	15			
				sand dropseed	5			
				winterfat	5			
				American vetch	3			
				buffalograss	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
To:								
Torreón-----	Basalt Loam	Favorable	2,300	western wheatgrass	30		---	---
		Normal	1,500	blue grama	20			
		Unfavorable	700	New Mexico feathergrass	10			
				big bluestem	5			
				sideoats grama	5			
				winterfat	5			
				little bluestem	3			
				true mountain mahogany	3			
				Gambel's oak	2			
				oneseed juniper	2			
				other perennial forbs	2			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
ToD:								
Torreón-----	Clayey Foothill	Favorable	1,650	western wheatgrass	35		---	---
		Normal	1,250	bluegrass	15			
		Unfavorable	800	green needlegrass	15			
				Sandberg bluegrass	7			
				fourwing saltbush	5			
				Indian ricegrass	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	3			
ToE:								
Torreón-----	Basalt Loam	Favorable	2,100	blue grama	30		---	---
		Normal	1,400	western wheatgrass	30			
		Unfavorable	700	New Mexico feathergrass	10			
				big bluestem	5			
				sideoats grama	5			
				winterfat	5			
				little bluestem	3			
				true mountain mahogany	3			
				Gambel's oak	2			
				oneseed juniper	2			
				other perennial forbs	2			
Torreón-----	Clayey Foothill	Favorable	1,650	western wheatgrass	35		---	---
		Normal	1,250	bluegrass	15			
		Unfavorable	800	green needlegrass	15			
				Sandberg bluegrass	7			
				fourwing saltbush	5			
				Indian ricegrass	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	3			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
TsD: Travessilla-----	Sandstone Breaks	Favorable	1,700	sideoats grama	15		---	---
		Normal	1,000	black grama	10			
		Unfavorable	500	little bluestem	10			
				needleandthread	5			
				prairie junegrass	5			
				sand dropseed	5			
				mountain mahogany	3			
				twoneedle pinyon	3			
				oneseed juniper	2			
TsE: Torreon-----	Clayey Foothill	Favorable	1,650	western wheatgrass	35		---	---
		Normal	1,250	bluegrass	15			
		Unfavorable	800	green needlegrass	15			
				Sandberg bluegrass	7			
				fourwing saltbush	5			
				Indian ricegrass	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	3			
TsF: Travessilla-----	Sandstone Breaks	Favorable	1,700	sideoats grama	15		---	---
		Normal	1,000	black grama	10			
		Unfavorable	550	little bluestem	10			
				needleandthread	5			
				prairie junegrass	5			
				sand dropseed	5			
				mountain mahogany	3			
				twoneedle pinyon	3			
				oneseed juniper	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Us:								
Aridic	Basalt Breaks	Favorable	2,200	sideoats grama	20		---	---
calciustolls---		Normal	1,200	New Mexico feathergrass	15			
		Unfavorable	800	little bluestem	15			
				mountain mahogany	10			
				Gambel's oak	7			
				other perennial forbs	5			
				oneseed juniper	4			
				mountain muhly	3			
				twoneedle pinyon	3			
				American vetch	2			
VB:								
Vona-----	Sandy (formerly Sandy Plains)	Favorable	2,200	blue grama	25		---	---
		Normal	1,650	prairie sandreed	20			
		Unfavorable	800	needleandthread	10			
				sand bluestem	7			
				little bluestem	5			
				switchgrass	5			
				western wheatgrass	5			
				sideoats grama	3			
				sun sedge	3			
				western sandcherry	3			
				American vetch	2			
				sand dropseed	2			
				sand sagebrush	2			
				spreading buckwheat	2			
				dotted gayfeather	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
VD:								
Dargol-----	Pinus ponderosa-Juniperus scopulorum/Quercus Gambelii	Favorable	---	Arizona fescue		15	ponderosa pine	55
		Normal	---	mountain muhly		15	Rocky Mountain Douglas fir	50
		Unfavorable	---	nodding brome		10		
				Parry's danthonia		10		
				western wheatgrass		10		
				elk sedge		5		
				Gambel's oak		5		
				kinnikinnick		5		
				pine dropseed		5		
				prairie junegrass		5		
Stout-----	Pinus ponderosa-Juniperus scopulorum/Quercus Gambelii	Favorable	---	Arizona fescue		20	ponderosa pine	40
		Normal	---	mountain muhly		15		
		Unfavorable	---	nodding brome		10		
				Parry's danthonia		10		
				elk sedge		5		
				Gambel's oak		5		
				little bluestem		5		
				pine dropseed		5		
				prairie junegrass		5		
Vamer-----	Pinus ponderosa-Juniperus scopulorum/Quercus Gambelii	Favorable	---	mountain muhly		20	ponderosa pine	50
		Normal	---	Arizona fescue		15		
		Unfavorable	---	nodding brome		10		
				pine dropseed		10		
				western wheatgrass		10		
				elk sedge		5		
				Gambel's oak		5		
				little bluestem		5		
				Parry's danthonia		5		
				prairie junegrass		5		

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
VnC:								
Vona-----	Sandy (formerly Sandy Plains)	Favorable	2,200	blue grama	25		---	---
		Normal	1,650	prairie sandreed	20			
		Unfavorable	800	needleandthread	10			
				sand bluestem	7			
				little bluestem	5			
				switchgrass	5			
				western wheatgrass	5			
				sideoats grama	3			
				sun sedge	3			
				western sandcherry	3			
				American vetch	2			
				sand dropseed	2			
				sand sagebrush	2			
				spreading buckwheat	2			
				dotted gayfeather	1			
VoB:								
Vona-----	Sandy (formerly Sandy Plains)	Favorable	2,200	blue grama	25		---	---
		Normal	1,650	prairie sandreed	20			
		Unfavorable	800	needleandthread	10			
				sand bluestem	7			
				little bluestem	5			
				switchgrass	5			
				western wheatgrass	5			
				sideoats grama	3			
				sun sedge	3			
				western sandcherry	3			
				American vetch	2			
				sand dropseed	2			
				sand sagebrush	2			
				spreading buckwheat	2			
				dotted gayfeather	1			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
VoC:								
Vonid-----	Sandy	Favorable	1,700	blue grama	30		---	---
		Normal	1,200	prairie sandreed	15			
		Unfavorable	650	sand bluestem	10			
				sideoats grama	8			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				American vetch	2			
VT:								
Villedry-----	Loamy	Favorable	1,200	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
VT:								
Travessilla-----	Sandstone Breaks	Favorable	---	sideoats grama	20		twoneedle pinyon	58
		Normal	1,000	blue grama	15		Rocky Mountain juniper	---
		Unfavorable	550	little bluestem	15			
				big bluestem	5			
				black grama	5			
				needleandthread	5			
				prairie sandreed	5			
				sand dropseed	5			
				western wheatgrass	5			
				mountain mahogany	3			
				skunkbush sumac	3			
				yellow Indiangrass	3			
				oneseed juniper	2			
				twoneedle pinyon	2			
VtC:								
Valent-----	Sands (formerly Deep Sands)	Favorable	2,350	sand bluestem	25		---	---
		Normal	1,800	prairie sandreed	20			
		Unfavorable	1,150	switchgrass	10			
				blue grama	5			
				sand dropseed	5			
				western sandcherry	5			
				yellow Indiangrass	5			
				leadplant	3			
				little bluestem	3			
				needleandthread	3			
				sand sagebrush	3			
				western wheatgrass	3			
				dotted gayfeather	2			
				Indian ricegrass	2			
				purple prairieclover	2			
				sideoats grama	2			



Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
W:								
Water-----	---	Favorable	---				---	---
		Normal	---					
		Unfavorable	---					
Wa:								
Wapiti-----	Loamy (formerly Loamy Plains)	Favorable	1,900	blue grama	30		---	---
		Normal	1,350	western wheatgrass	25			
		Unfavorable	600	green needlegrass	10			
				winterfat	5			
				American vetch	3			
				buffalograss	3			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			
WC:								
Plughat-----	Loamy (formerly Loamy Plains)	Favorable	1,700	blue grama	35		---	---
		Normal	1,250	western wheatgrass	25			
		Unfavorable	550	green needlegrass	7			
				winterfat	5			
				sand dropseed	3			
				American vetch	2			
				purple prairieclover	2			
				scarlet globemallow	2			
				sun sedge	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			Lb/acre		Pct.	Pct.		
WC:								
Villegreen-----	Loamy (formerly Loamy Plains)	Favorable	1,600	blue grama	40		---	---
		Normal	1,200	western wheatgrass	20			
		Unfavorable	550	green needlegrass	5			
				winterfat	5			
				sand dropseed	3			
				bottlebrush squirreltail	2			
				rabbitbrush	2			
				broom snakeweed	1			
				red threeawn	1			
WeB:								
Wiley-----	Loamy (formerly Loamy Plains)	Favorable	1,800	blue grama	30		---	---
		Normal	1,300	western wheatgrass	25			
		Unfavorable	600	green needlegrass	10			
				buffalograss	5			
				winterfat	5			
				American vetch	3			
				purple prairieclover	2			
				sand dropseed	2			
				scarlet globemallow	2			
				sun sedge	2			
WM:								
Minnequa-----	Loamy	Favorable	1,150	blue grama	35		---	---
		Normal	750	western wheatgrass	20			
		Unfavorable	300	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
WM:								
Wilid-----	Loamy	Favorable	1,200	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			
WrB:								
Wilid-----	Clayey	Favorable	1,200	western wheatgrass	35		---	---
		Normal	800	blue grama	20			
		Unfavorable	350	fourwing saltbush	10			
				galleta	10			
				green needlegrass	7			
				alkali sacaton	5			
				winterfat	5			
				American vetch	3			
WV:								
Almagre-----	Loamy	Favorable	1,200	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
WV:								
Villedry-----	Loamy	Favorable	1,200	blue grama	35		---	---
		Normal	800	western wheatgrass	20			
		Unfavorable	350	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			
WyB:								
Willid-----	Loamy	Favorable	1,300	blue grama	35		---	---
		Normal	900	western wheatgrass	20			
		Unfavorable	400	galleta	10			
				fourwing saltbush	5			
				sand dropseed	5			
				sideoats grama	5			
				winterfat	5			
				green needlegrass	4			
				American vetch	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
Yaa:								
Yattle-----	Sandy	Favorable	1,650	blue grama	35		---	---
		Normal	1,150	prairie sandreed	10			
		Unfavorable	600	sand bluestem	7			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				sideoats grama	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				sand sagebrush	3			
				sun sedge	3			
				American vetch	2			
				spreading buckwheat	2			
YaC:								
Yattle-----	Sandy	Favorable	1,650	blue grama	35		---	---
		Normal	1,150	prairie sandreed	10			
		Unfavorable	600	sand bluestem	7			
				little bluestem	5			
				needleandthread	5			
				sand dropseed	5			
				sideoats grama	5			
				western wheatgrass	5			
				fourwing saltbush	3			
				sand sagebrush	3			
				sun sedge	3			
				American vetch	2			
				spreading buckwheat	2			

Table 7.--Ecological sites and characteristic native vegetation--continued

Map symbol and soil name	Ecological site	Total production		Characteristic native vegetation	Composition		Common trees	Site index
		Kind of year	Dry weight		Range- land	Forest		
			<u>Lb/acre</u>		<u>Pct.</u>	<u>Pct.</u>		
ZR:								
Rizozo-----	Sandstone Breaks	Favorable	1,500	sideoats grama	20		---	---
		Normal	900	blue grama	15			
		Unfavorable	500	little bluestem	15			
				big bluestem	5			
				black grama	5			
				needleandthread	5			
				prairie sandreed	5			
				sand dropseed	5			
				western wheatgrass	5			
				mountain mahogany	3			
				skunkbush sumac	3			
				yellow Indiangrass	3			
				oneseed juniper	2			
				twoneedle pinyon	2			
ZRF:								
Rizozo-----	Sandstone Breaks	Favorable	1,500	sideoats grama	20		---	---
		Normal	900	blue grama	15			
		Unfavorable	500	little bluestem	15			
				big bluestem	5			
				black grama	5			
				needleandthread	5			
				prairie sandreed	5			
				sand dropseed	5			
				western wheatgrass	5			
				mountain mahogany	3			
				skunkbush sumac	3			
				yellow Indiangrass	3			
				oneseed juniper	2			
				twoneedle pinyon	2			

Table 8.--Forestland productivity

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
AW:				
Allens Park-----	ponderosa pine-----	54	41	ponderosa pine, Rocky Mountain Douglas fir, white fir
	Rocky Mountain	65	50	
	Douglas fir-----			
	white fir-----	65	145	
Wahatoya-----	Rocky Mountain	65	50	ponderosa pine, Rocky Mountain Douglas fir, white fir
	Douglas fir-----			
	white fir-----	65	145	
	ponderosa pine-----	54	41	
Bk:				
Fallriver-----	Engelmann's spruce--	52	41	blue spruce, Engelmann's spruce, subalpine fir
	subalpine fir-----	56	45	
DFV:				
Fuera-----	ponderosa pine-----	52	43	ponderosa pine, Rocky Mountain Douglas fir
	Rocky Mountain	48	36	
	Douglas fir-----			
	white fir-----	60	128	
Dargol-----	ponderosa pine-----	52	43	ponderosa pine, Rocky Mountain Douglas fir, white fir
	Rocky Mountain	50	36	
	Douglas fir-----			
	white fir-----	60	128	



Table 8.--Forestland productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
DFV:				
Vamer-----	ponderosa pine-----	50	38	ponderosa pine
	Rocky Mountain	40	30	
	Douglas fir-----			
	white fir-----	40	64	
Ds:				
Des Moines-----	ponderosa pine-----	42	32	ponderosa pine
Rock outcrop-----	---	---	---	---
Fp:				
Fishers-----	ponderosa pine-----	42	32	ponderosa pine,
	white fir-----	39	63	white fir
FuE:				
Bandarito-----	---	---	---	---
Fishers-----	ponderosa pine-----	42	32	ponderosa pine,
	white fir-----	39	63	white fir
Furia-----	---	---	---	---
FW:				
Bandarito-----	---	---	---	---
Fishers-----	ponderosa pine-----	42	32	ponderosa pine,
	white fir-----	39	63	white fir

Table 8.--Forestland productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
GA:				
Gulnare-----	ponderosa pine-----	50	38	ponderosa pine
Allens Park-----	ponderosa pine-----	54	42	ponderosa pine
	Rocky Mountain	40	30	
	Douglas fir-----			
Gn:				
Angostura-----	Engelmann's spruce--	55	44	Engelmann's spruce,
	Rocky Mountain	50	38	subalpine fir
	Douglas fir-----			
	subalpine fir-----	54	43	
GR:				
Gulnare-----	ponderosa pine-----	50	38	ponderosa pine
Rock outcrop-----	---	---	---	---
Ld:				
Leadville-----	Engelmann's spruce--	52	41	Engelmann's spruce,
	Rocky Mountain	60	46	Rocky Mountain
	Douglas fir-----			Douglas fir,
	subalpine fir-----	60	50	subalpine fir
LH:				
Leadville-----	Engelmann's spruce--	50	39	Engelmann's spruce,
	Rocky Mountain	60	46	Rocky Mountain
	Douglas fir-----			Douglas fir,
	subalpine fir-----	60	50	subalpine fir

Table 8.--Forestland productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
LH:				
Howlett-----	Engelmann's spruce--	50	39	Engelmann's spruce, Rocky Mountain Douglas fir, subalpine fir
	Rocky Mountain	55	43	
	Douglas fir-----			
	subalpine fir-----	60	50	
LR:				
Fallriver-----	Engelmann's spruce--	50	39	blue spruce, Engelmann's spruce, subalpine fir
	subalpine fir-----	56	45	
Rubble land-----	---	---	---	---
LRT:				
Lorencito-----	Rocky Mountain	---	---	---
	juniper-----			
	twoneedle pinyon----	60	---	
Rombo-----	Gambel's oak-----	---	---	---
	ponderosa pine-----	---	---	
	twoneedle pinyon----	---	---	
Sarcillo-----	oneseed juniper-----	---	---	---
	Rocky Mountain	---	---	
	juniper-----			
	twoneedle pinyon----	90	14	

Table 8.--Forestland productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
LST:				
Lorencito-----	Rocky Mountain juniper-----	---	0	---
	twoneedle pinyon----	60	0	
Sarcillo-----	oneseed juniper-----	---	0	---
	Rocky Mountain juniper-----	---	0	
	twoneedle pinyon----	90	14	
Trujillo-----	---	---	---	---
Lt:				
Littlepine-----	ponderosa pine-----	58	45	ponderosa pine
	Rocky Mountain Douglas fir-----	50	38	
LW:				
Littlepine-----	ponderosa pine-----	55	43	ponderosa pine
	Rocky Mountain Douglas fir-----	50	38	
Wahatoya-----	ponderosa pine-----	54	42	Rocky Mountain
	Rocky Mountain Douglas fir-----	50	38	Douglas fir, white fir

Table 8.--Forestland productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
MG:				
Tercio-----	Engelmann's spruce--	50	39	Engelmann's spruce,
	Rocky Mountain	60	46	Rocky Mountain
	Douglas fir-----			Douglas fir, white
	white fir-----	70	163	fir
Graneros-----	Engelmann's spruce--	50	39	Engelmann's spruce,
	Rocky Mountain	60	46	Rocky Mountain
	Douglas fir-----			Douglas fir, white
	white fir-----	45	77	fir
MGR:				
Midway, moist-----	---	---	---	---
Ritoazul-----	---	---	---	---
Rock outcrop-----	---	---	---	---
Minqwet-----	---	---	---	---
NM:				
Nopurg-----	Engelmann's spruce--	52	41	Engelmann's spruce,
	Rocky Mountain	55	43	Rocky Mountain
	Douglas fir-----			Douglas fir,
	white fir-----	65	145	subalpine fir
Mitotes-----	Engelmann's spruce--	52	41	Engelmann's spruce,
	Rocky Mountain	55	43	Rocky Mountain
	Douglas fir-----			Douglas fir, white
	white fir-----	65	145	fir

Table 8.--Forestland productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
SL:				
Standard-----	Rocky Mountain	50	38	Engelmann's spruce,
	Douglas fir-----			Rocky Mountain
	white fir-----	30	51	Douglas fir, white
				fir
Leadville-----	Engelmann's spruce--	50	39	Engelmann's spruce,
	Rocky Mountain	60	46	Rocky Mountain
	Douglas fir-----			Douglas fir, white
	white fir-----	42	69	fir
Rock outcrop-----	---	---	---	---
Nopurg-----	Engelmann's spruce--	65	57	---
	subalpine fir-----	55	43	
TeE:				
Tecolote-----	ponderosa pine-----	55	42	ponderosa pine
Littlepine-----	ponderosa pine-----	58	45	ponderosa pine
	Rocky Mountain	55	42	
	Douglas fir-----			
TF:				
Torreón, stony-----	---	---	---	---
Fuera-----	ponderosa pine-----	50	38	ponderosa pine,
	Rocky Mountain	48	36	Rocky Mountain
	Douglas fir-----			Douglas fir

Table 8.--Forestland productivity--continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			cu ft/ac	
TF:				
Capulin-----	---	---	---	---
Lorencito-----	---	---	---	---
VD:				
Dargol-----	ponderosa pine----- Rocky Mountain Douglas fir-----	55 50	42 38	ponderosa pine, Rocky Mountain Douglas fir
Stout-----	ponderosa pine-----	40	30	ponderosa pine
Vamer-----	ponderosa pine-----	50	38	ponderosa pine



Table 9.--Windbreaks and environmental plantings

(Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
AA:					
Ayon-----	skunkbush sumac	eastern redcedar; Rocky Mountain juniper	ponderosa pine; Russian olive; Siberian elm	---	---
Apache-----	---	---	---	---	---
AC:					
Ayon-----	skunkbush sumac	eastern redcedar; Rocky Mountain juniper	ponderosa pine; Russian olive; Siberian elm	---	---
Capulin-----	American plum; common lilac	eastern redcedar; Rocky Mountain juniper	honeylocust; plains cottonwood; ponderosa pine; Russian olive	---	---
AcC:					
Acantilado-----	common lilac; Siberian peashrub; skunkbush sumac; Tatarian honeysuckle	common hackberry; eastern redcedar; green ash; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
AED:					
Dams, earthen dam-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
AnB: Ascalon-----	American plum; common lilac	---	eastern redcedar; ponderosa pine; Rocky Mountain juniper; Russian olive	common hackberry; Siberian elm	---
Ap: Apache-----	---	---	---	---	---
AR: Calcidic Argiustolls----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
AsB: Ascalon, overblown-----	American plum; common lilac	---	eastern redcedar; ponderosa pine; Rocky Mountain juniper; Russian olive	common hackberry; Siberian elm	---
AV: Aguilar-----	---	---	---	---	---
Beckton-----	---	---	---	---	---
AvC: Aguilar-----	---	---	---	---	---
AW: Allens Park-----	---	---	---	---	---
Wahatoya-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
BaA: Baca-----	---	Rocky Mountain juniper	ponderosa pine; Russian olive; Siberian elm	---	---
BaB: Bacid-----	---	Rocky Mountain juniper	ponderosa pine; Russian olive; Siberian elm	---	---
BaC: Baca, cool-----	---	Rocky Mountain juniper	ponderosa pine; Russian olive; Siberian elm	---	---
BcA: Baca, cool-----	---	Rocky Mountain juniper	ponderosa pine; Russian olive; Siberian elm	---	---
Bk: Fallriver-----	---	---	---	---	---
BnA: Bacid-----	---	Rocky Mountain juniper	ponderosa pine; Russian olive; Siberian elm	---	---
BT: Barela-----	---	---	---	---	honeylocust; Rocky Mountain juniper; Siberian elm; skunkbush sumac

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
BT: Raton-----	---	---	---	---	---
BWA: Bloom-----	---	---	Russian olive; Siberian elm	plains cottonwood	---
Bx: Boxcanyon-----	---	Rocky Mountain juniper	ponderosa pine; Russian olive; Siberian elm	---	---
CaD: Razor-----	---	---	---	---	---
CC: Chacuaco-----	---	---	eastern redcedar; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive; Siberian elm	---	---
Capulin-----	American plum; common lilac	eastern redcedar; Rocky Mountain juniper	honeylocust; ponderosa pine; Russian olive	Siberian elm	---
CD: Chacuaco-----	---	---	eastern redcedar; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive; Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
CD: Dalerose-----	---	---	---	---	---
Co: Collegiate-----	---	---	---	---	---
CpA: Calemore-----	American plum; common lilac; western sandcherry	eastern redcedar; Rocky Mountain juniper	ponderosa pine; Russian olive	Siberian elm	---
CpB: Calemore-----	American plum; common lilac; western sandcherry	eastern redcedar; Rocky Mountain juniper	ponderosa pine; Russian olive	Siberian elm	---
CpC: Capulin-----	American plum; common lilac	eastern redcedar; Rocky Mountain juniper	honeylocust; plains cottonwood; ponderosa pine; Russian olive	---	---
CpT: Capulin-----	American plum; common lilac	eastern redcedar; Rocky Mountain juniper	honeylocust; plains cottonwood; ponderosa pine; Russian olive	---	---
Torreón-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
Ct: Breece-----	common lilac; Siberian peashrub	common chokecherry; Tatarian honeysuckle	blue spruce; lodgepole pine; ponderosa pine; Rocky Mountain juniper; Russian olive	green ash; Siberian elm	---
CwC: Cumulic Cryaquolls-----	---	---	---	---	---
DaE: Dalerose-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
De: Davtone-----	---	---	Rocky Mountain juniper	---	blue spruce; Engelmann's spruce; ponderosa pine; Rocky Mountain Douglas fir
DFV: Fuera-----	---	---	---	---	---
Dargol-----	---	---	---	---	---
Vamer-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
DH: Davtone-----	---	---	Rocky Mountain juniper	---	blue spruce; Engelmann's spruce; ponderosa pine; Rocky Mountain Douglas fir
Histic Cryaquolls-----	---	---	---	---	---
Dm: Demayo-----	---	---	---	---	---
Ds: Des Moines-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
Dt: Davtone-----	---	---	Rocky Mountain juniper	---	blue spruce; Engelmann's spruce; ponderosa pine; Rocky Mountain Douglas fir
Dv: Feterita-----	---	---	---	---	ponderosa pine; Rocky Mountain juniper; Russian olive; Siberian elm



Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
Ec:					
Eguaje-----	American plum; common chokecherry; Siberian peashrub	eastern redcedar; green ash; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
Demayo-----	---	---	---	---	---
EL:					
Ellicott-----	American plum; common lilac	---	golden willow; Russian olive	honeylocust; plains cottonwood; ponderosa pine; Siberian elm	---
Las Animas-----	common chokecherry; common lilac; fourwing saltbush	---	eastern redcedar; golden willow; Siberian elm	plains cottonwood	---
ES:					
Embargo-----	---	---	---	---	---
Schwacheim-----	---	---	---	---	---
FCB:					
Wapiti-----	American plum; common chokecherry; common lilac; Siberian peashrub	green ash; ponderosa pine; Rocky Mountain juniper; Russian olive	lacebark elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
FcC: Fort-----	American plum; common chokecherry; common lilac; Siberian peashrub	green ash; ponderosa pine; Rocky Mountain juniper; Russian olive	lacebark elm	---	---
FcD: Fort-----	American plum; common chokecherry; common lilac; Siberian peashrub	green ash; ponderosa pine; Rocky Mountain juniper; Russian olive	lacebark elm	---	---
Fp: Fishers-----	---	---	---	---	---
FtC: Olnest-----	American plum; common chokecherry; common lilac; Siberian peashrub	Rocky Mountain juniper	green ash; ponderosa pine; Russian olive	lacebark elm	---
FuD: Bandarito-----	---	---	---	---	---
FuE: Bandarito-----	---	---	---	---	---
FW: Bandarito-----	---	---	---	---	---
Fishers-----	---	---	---	---	---
FyB: Furia-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
GA: Gulnare-----	---	---	---	---	---
Allens Park-----	---	---	---	---	---
GC: Groomer-----	---	common chokecherry	Scotch pine	---	blue spruce; Engelmann's spruce; limber pine; ponderosa pine; white fir
Cucharas-----	---	---	---	---	blue spruce; Engelmann's spruce; limber pine; ponderosa pine; white fir
GgB: Glenberg-----	American plum; common chokecherry; common lilac	eastern redcedar; Russian olive	honeylocust; ponderosa pine	Siberian elm	---
GmE: Aquic Dystrocryepts-----	---	---	---	---	---
Gn: Angostura-----	---	---	---	---	---
GP: Pits, gravel-----	---	---	---	---	---
GR: Gulnare-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
GR: Rock outcrop-----	---	---	---	---	---
Hn: Hoehne-----	American plum; common lilac	---	golden willow; Russian olive	honeylocust; plains cottonwood; ponderosa pine; Siberian elm	---
HvA: Haversid-----	common chokecherry; common lilac	Rocky Mountain juniper; Russian olive; Siberian peashrub	green ash; plains cottonwood; ponderosa pine	---	---
HyD: Humbarsprings-----	American plum; common lilac; eastern redcedar; Rocky Mountain juniper; Russian olive; Siberian peashrub; twoneedle pinyon	green ash; honeylocust; ponderosa pine	Siberian elm	---	---
K2D: Kimera-----	common chokecherry; common lilac	common hackberry; honeylocust; Rocky Mountain juniper; Russian olive	ponderosa pine; Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
K2D: Chicosa-----	American plum; common lilac; eastern redcedar; Rocky Mountain juniper; Russian olive; Siberian peashrub; twoneedle pinyon	green ash; honeylocust; ponderosa pine	Siberian elm	---	---
KI: Kandrix-----	common lilac; Siberian peashrub; skunkbush sumac; Tatarian honeysuckle	common hackberry; eastern redcedar; green ash; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
Chicosa-----	American plum; common lilac; eastern redcedar; Rocky Mountain juniper; Russian olive; Siberian peashrub; twoneedle pinyon	green ash; honeylocust; ponderosa pine	Siberian elm	---	---
Km: Kimera-----	common chokecherry; common lilac	common hackberry; honeylocust; Rocky Mountain juniper; Russian olive	ponderosa pine; Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
KmC: Willid-----	Rocky Mountain juniper	common hackberry; honeylocust; ponderosa pine; Russian olive	Siberian elm	---	---
Kimera-----	common lilac; skunkbush sumac	eastern redcedar; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
KO: Kimera-----	common chokecherry; common lilac	common hackberry; honeylocust; Rocky Mountain juniper; Russian olive	ponderosa pine; Siberian elm	---	---
Oterodry-----	common lilac; eastern redcedar; Rocky Mountain juniper	common hackberry; ponderosa pine; Russian olive	Siberian elm	---	---
Kw: Kandrix-----	common lilac; Siberian peashrub; skunkbush sumac; Tatarian honeysuckle	common hackberry; eastern redcedar; green ash; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
KwC: Kandrix-----	common lilac; Siberian peashrub; skunkbush sumac; Tatarian honeysuckle	common hackberry; eastern redcedar; green ash; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
Wiley-----	Rocky Mountain juniper; Siberian peashrub; skunkbush sumac	eastern redcedar; green ash; honeylocust; Russian olive	ponderosa pine; Siberian elm	---	---
La: Lanola-----	---	---	---	---	---
Lb: La Brier-----	---	Rocky Mountain juniper; Russian olive	ponderosa pine	---	---
Ld: Leadville-----	---	---	---	---	---
LG: Manzanst-----	common chokecherry; Nanking cherry; Siberian peashrub	eastern redcedar; green ash; ponderosa pine; Russian olive	Siberian elm	---	---



Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
LG: Ritoazul-----	American plum; common chokecherry; common lilac; eastern redcedar; Siberian peashrub; Tatarian honeysuckle	green ash; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
LH: Leadville-----	---	---	---	---	---
Howlett-----	---	---	---	---	---
Lo: La Brier-----	---	Rocky Mountain juniper; Russian olive	ponderosa pine	---	---
Rock outcrop-----	---	---	---	---	---
LoA: Limon-----	Rocky Mountain juniper; Siberian peashrub	green ash; lacebark elm; Russian olive	---	---	---
LR: Fallriver-----	---	---	---	---	---
Rubble land-----	---	---	---	---	---
LRT: Lorencito-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
LRT:					
Rombo-----	---	---	---	---	---
Sarcillo-----	---	---	---	---	---
Ls:					
Las Animas-----	common chokecherry; common lilac; fourwing saltbush	---	eastern redcedar; golden willow; Siberian elm	plains cottonwood	---
LST:					
Lorencito-----	---	---	---	---	---
Sarcillo-----	---	---	---	---	---
Trujillo-----	---	---	---	---	---
Lt:					
Littlepine-----	---	---	---	---	---
LvD:					
Lorencito-----	---	---	---	---	---
LW:					
Littlepine-----	---	---	---	---	---
Wahatoya-----	---	---	---	---	---
MaB:					
Mauricanyon, warm-----	American plum; common lilac	honeylocust; ponderosa pine; Rocky Mountain juniper	green ash; Russian olive; Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
MaW: Mauricanyon, wet-----	American plum; common lilac	honeylocust; ponderosa pine; Rocky Mountain juniper	green ash; Russian olive; Siberian elm	---	---
MD: Dumps, mine-----	---	---	---	---	---
Mf: Moran-----	---	---	---	---	---
MG: Tercio-----	---	---	---	---	---
Graneros-----	---	---	---	---	---
MGR: Midway, moist-----	---	---	---	---	---
Ritoazul-----	---	ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
Rock outcrop-----	---	---	---	---	---
MI: Minqwet-----	common lilac; Siberian peashrub; twoneedle pinyon	eastern redcedar; ponderosa pine; Russian olive	bur oak; Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
MI: Wiley-----	Rocky Mountain juniper; Siberian peashrub; skunkbush sumac	eastern redcedar; green ash; honeylocust; Russian olive	ponderosa pine; Siberian elm	---	---
MIK: Midway-----	---	---	---	---	---
Chicosa-----	American plum; common lilac; eastern redcedar; Rocky Mountain juniper; Russian olive; Siberian peashrub; twoneedle pinyon	green ash; honeylocust; ponderosa pine	Siberian elm	---	---
MnA: Manzanst-----	American plum; common chokecherry; common lilac; eastern redcedar; Siberian peashrub	common hackberry; green ash; honeylocust; ponderosa pine; Rocky Mountain juniper	---	---	---
MnB: Manzanst-----	American plum; common chokecherry; common lilac; eastern redcedar; Siberian peashrub	common hackberry; green ash; honeylocust; ponderosa pine; Rocky Mountain juniper	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
MnW: Aquic Haplustalfs-----	American plum; common chokecherry; common lilac; eastern redcedar; Siberian peashrub	common hackberry; green ash; honeylocust; ponderosa pine; Rocky Mountain juniper	---	---	---
MoA: Mauricanyon-----	American plum; common lilac	honeylocust; ponderosa pine; Rocky Mountain juniper	green ash; Russian olive; Siberian elm	---	---
MoB: Mauricanyon, dry-----	American plum; common lilac	honeylocust; ponderosa pine; Rocky Mountain juniper	green ash; Russian olive; Siberian elm	---	---
MoR: Mion-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
MP: Midway-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
MP: Razor-----	American plum; common chokecherry; common lilac; eastern redcedar; Siberian peashrub; Tatarian honeysuckle	green ash; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
Rock outcrop-----	---	---	---	---	---
MR: Mirror-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
MvC: Manvel-----	common lilac; eastern redcedar; Rocky Mountain juniper; Siberian peashrub; silver buffaloberry	green ash; ponderosa pine; Russian olive; Siberian elm	---	---	---
MyD: Midway-----	---	---	---	---	---
MzA: Manzanola-----	common chokecherry; Nanking cherry; Siberian peashrub	eastern redcedar; green ash; ponderosa pine; Russian olive	Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
MzB: Manzanola-----	common chokecherry; Nanking cherry; Siberian peashrub	eastern redcedar; green ash; ponderosa pine; Russian olive	Siberian elm	---	---
NM: Nopurg-----	---	---	---	---	---
Mitotes-----	---	---	---	---	---
OeC: Otero-----	American plum	eastern redcedar; green ash; ponderosa pine; Russian olive	honeylocust; Rocky Mountain juniper; Siberian elm	---	---
OtD: Oterodry-----	common lilac; eastern redcedar; Rocky Mountain juniper	common hackberry; ponderosa pine; Russian olive	Siberian elm	---	---
OyB: Olnest-----	common chokecherry; common lilac; Siberian peashrub	Austrian pine; eastern redcedar; ponderosa pine; Rocky Mountain juniper; Scotch pine	blue spruce; common hackberry; green ash; Russian olive	---	---



Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
OyC: Olnest-----	common chokecherry; common lilac; Siberian peashrub	Austrian pine; eastern redcedar; ponderosa pine; Rocky Mountain juniper; Scotch pine	blue spruce; common hackberry; green ash; Russian olive	---	---
PeD: Penrose-----	---	---	---	---	---
PeF: Penrose-----	---	---	---	---	---
Midway-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
PM: Penrose-----	---	---	---	---	---
Minnequa-----	common lilac; Siberian peashrub; twoneedle pinyon	eastern redcedar; ponderosa pine; Russian olive	bur oak; Siberian elm	---	---
PnD: Penrose, moist-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
RaB: Ravine-----	American plum; common chokecherry; common lilac; eastern redcedar; Siberian peashrub; Tatarian honeysuckle	green ash; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
RaC: Ritoazul-----	---	ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
RB: Raton-----	---	---	---	---	---
Barela-----	---	---	---	---	honeylocust; Rocky Mountain juniper; Siberian elm; skunkbush sumac
Rc: Raku-----	American plum; common lilac; Nanking cherry	eastern redcedar; Rocky Mountain juniper	Austrian pine; blue spruce; common hackberry; green ash; ponderosa pine; Russian olive; Scotch pine	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
RcA: Raku-----	American plum; common lilac; Nanking cherry	eastern redcedar; Rocky Mountain juniper	Austrian pine; blue spruce; common hackberry; green ash; ponderosa pine; Russian olive; Scotch pine	---	---
Rd: Romound-----	eastern redcedar; oneseed juniper; Rocky Mountain juniper	Russian olive	Siberian elm	---	---
RF: Rock outcrop-----	---	---	---	---	---
Rubble land-----	---	---	---	---	---
Rt: Raton-----	---	---	---	---	---
RyC: Ryegate-----	Siberian peashrub; western sandcherry	eastern redcedar; green ash; Rocky Mountain juniper; Russian olive	ponderosa pine; Siberian elm	---	---
RzD: Rizozo, moist-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
Sc: Schwacheim-----	---	---	---	---	---
ScR: Schwacheim-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
SG: Ovmesa-----	---	---	---	---	---
Romound-----	eastern redcedar; oneseed juniper; Rocky Mountain juniper	Russian olive	Siberian elm	---	---
ShD: Shingle-----	---	---	---	---	---
Penrose-----	---	---	---	---	---
SL: Scandard-----	---	---	---	---	---
Leadville-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
SM: Schamber-----	---	---	---	---	---
Midway-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
Sn: Sitcan-----	American plum; common chokecherry; eastern redcedar	Austrian pine; green ash; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
SR: Saruche-----	---	---	---	---	---
Rombo-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
Sw: Molinaro-----	---	---	---	---	---
TbA: Trementina, warm-----	American plum; golden willow; honeysuckle	---	ponderosa pine; Rocky Mountain juniper; Russian olive	plains cottonwood	---
TeE: Tecolote-----	---	---	---	---	---
TF: Torreon, stony-----	---	---	---	---	---
Fuera-----	---	---	---	---	---
TgD: Trujillo-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
TgE: Trujillo-----	---	---	---	---	---
TL: Torreon, stony-----	---	---	---	---	---
Lorencito-----	---	---	---	---	---
TmD: Trujillo-----	---	---	---	---	---
TnA: Trementina, cool-----	American plum; golden willow; honeysuckle	---	ponderosa pine; Rocky Mountain juniper; Russian olive	plains cottonwood	---
TnB: Trementina, dry-----	American plum; golden willow; honeysuckle	---	ponderosa pine; Rocky Mountain juniper; Russian olive	plains cottonwood	---
To: Torreon-----	---	Rocky Mountain juniper; Russian olive	ponderosa pine	---	---
ToD: Torreon-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
ToE: Torreon-----	---	Rocky Mountain juniper; Russian olive	ponderosa pine	---	---
Torreon, stony-----	---	---	---	---	---
TsD: Travessilla-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
TsE: Torreon-----	---	---	---	---	---
TsF: Travessilla-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
Us: Aridic Calciustolls----	---	---	---	---	---
VB: Vona, overblown-----	---	---	green ash; ponderosa pine; Rocky Mountain juniper; Russian olive	common hackberry; Siberian elm; Siouxland cottonwood	---
VD: Dargol-----	---	---	---	---	---
Stout-----	---	---	---	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
VD: Vamer-----	---	---	---	---	---
VnC: Vona-----	American plum; common chokecherry; common lilac; Siberian peashrub	Austrian pine; eastern redcedar; green ash; honeylocust; ponderosa pine	Siberian elm	---	---
VoB: Vona-----	American plum; common chokecherry; common lilac; Siberian peashrub	Austrian pine; eastern redcedar; green ash; honeylocust; ponderosa pine	Siberian elm	---	---
VoC: Vonid-----	American plum; common chokecherry; common lilac; eastern redcedar; Siberian peashrub	Austrian pine; green ash; honeylocust; ponderosa pine	Siberian elm	---	---
VT: Villedry-----	common lilac; Rocky Mountain juniper	honeylocust; ponderosa pine; Russian olive	Siberian elm	---	---
Travessilla-----	---	---	---	---	---



Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
VtC: Valent-----	---	eastern redcedar; jack pine; Rocky Mountain juniper	Austrian pine; ponderosa pine	---	---
W: Water-----	---	---	---	---	---
Wa: Wapiti-----	American plum; common chokecherry; common lilac; Siberian peashrub	eastern redcedar; Rocky Mountain juniper	Austrian pine; blue spruce; common hackberry; green ash; ponderosa pine; Scotch pine	---	---
WC: Plughat-----	common lilac	common hackberry; eastern redcedar; honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive	Siberian elm	---	---
Villegreen-----	common lilac	---	honeylocust; ponderosa pine; Rocky Mountain juniper; Russian olive; Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
WeB: Wiley-----	Rocky Mountain juniper; Siberian peashrub; skunkbush sumac	eastern redcedar; green ash; honeylocust; Russian olive	ponderosa pine; Siberian elm	---	---
WM: Minnequa-----	common lilac; Siberian peashrub; twoneedle pinyon	eastern redcedar; ponderosa pine; Russian olive	bur oak; Siberian elm	---	---
Wilid-----	Rocky Mountain juniper	common hackberry; honeylocust; ponderosa pine; Russian olive	Siberian elm	---	---
WrB: Wilid-----	Rocky Mountain juniper	common hackberry; honeylocust; ponderosa pine; Russian olive	Siberian elm	---	---
WV: Almagre-----	common lilac; eastern redcedar; Rocky Mountain juniper	common hackberry; honeylocust; ponderosa pine; Russian olive	Siberian elm	---	---
Villedry-----	common lilac; Rocky Mountain juniper	honeylocust; ponderosa pine; Russian olive	Siberian elm	---	---

Table 9.--Windbreaks and environmental plantings--continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
WyB: Wilid-----	Rocky Mountain juniper	common hackberry; honeylocust; ponderosa pine; Russian olive	Siberian elm	---	---
YaA: Yattle-----	American plum	Rocky Mountain juniper	eastern redcedar; honeylocust; ponderosa pine; Russian olive	plains cottonwood; Siberian elm	---
YaC: Yattle-----	American plum	Rocky Mountain juniper	eastern redcedar; honeylocust; ponderosa pine; Russian olive	plains cottonwood; Siberian elm	---
ZR: Rizozo-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---
ZRF: Rizozo-----	---	---	---	---	---
Rock outcrop-----	---	---	---	---	---

Table 10.--Camp areas, picnic areas, and playgrounds

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AA: Ayon-----	45	Very limited Large stones content Dusty Gravel content	1.00 0.50 0.07	Very limited Large stones content Dusty Gravel content	1.00 0.50 0.07	Very limited Gravel content Large stones content Slope Dusty	1.00 1.00 0.88 0.50
Apache-----	40	Very limited Large stones content Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Large stones content Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Large stones content Depth to bedrock Gravel content Slope Dusty	1.00 1.00 0.97 0.88 0.50
Rock outcrop-----	5	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AC: Ayon-----	50	Very limited Large stones content Slope Dusty	1.00 0.96 0.50	Very limited Large stones content Slope Dusty	1.00 0.96 0.50	Very limited Large stones content Slope Gravel content Dusty	1.00 1.00 0.79 0.50
Capulin-----	45	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.88 0.50
AcC: Acantilado-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
AED: Dams, earthen dam---	100	Not rated		Not rated		Not rated	
AnB: Ascalon-----	85	Not limited		Not limited		Not limited	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ap: Apache-----	85	Very limited Slope Large stones content Depth to bedrock Dusty	1.00 1.00 1.00 0.50	Very limited Large stones content Slope Depth to bedrock Dusty	1.00 1.00 1.00 0.50	Very limited Depth to bedrock Slope Large stones content Gravel content Dusty	1.00 1.00 1.00 0.97 0.50
Rock outcrop-----	5	Not rated		Not rated		Not rated	
AR: Calcidic Argiustolls	65	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41
Rock outcrop-----	15	Not rated		Not rated		Not rated	
AsB: Ascalon, overblown--	85	Not limited		Not limited		Not limited	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AV: Aguilar-----	45	Very limited Sodium content Slow water movement Salinity	1.00 1.00 0.01	Very limited Sodium content Slow water movement Salinity	1.00 1.00 0.01	Very limited Sodium content Slow water movement Salinity	1.00 1.00 0.01
Beckton-----	45	Very limited Sodium content Salinity Dusty Slow water movement	1.00 1.00 0.50 0.45	Very limited Sodium content Salinity Dusty Slow water movement	1.00 1.00 0.50 0.45	Very limited Sodium content Salinity Dusty Slow water movement	1.00 1.00 0.50 0.45
AvC: Aguilar-----	90	Very limited Sodium content Slow water movement Dusty	1.00 1.00 0.50	Very limited Sodium content Slow water movement Dusty	1.00 1.00 0.50	Very limited Sodium content Slow water movement Slope Dusty	1.00 1.00 0.50 0.50
AW: Allens Park-----	45	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Large stones content Depth to bedrock	1.00 0.19 0.03

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AW: Wahatoya-----	40	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to bedrock	1.00 1.00 0.06
BaA: Baca-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
BaB: Bacid-----	85	Somewhat limited Dusty Slow water movement	0.50 0.39	Somewhat limited Dusty Slow water movement	0.50 0.39	Somewhat limited Dusty Slow water movement Slope	0.50 0.39 0.12
BaC: Baca, cool-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
BcA: Baca, cool-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50



Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Bk: Fallriver-----	85	Very limited Slope Large stones content	1.00 1.00	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope	1.00 1.00
Rock outcrop-----	3	Not rated		Not rated		Not rated	
BnA: Bacid-----	85	Somewhat limited Slow water movement	0.39	Somewhat limited Slow water movement	0.39	Somewhat limited Slow water movement	0.39
BT: Barela-----	60	Somewhat limited Slow water movement Large stones content	0.41 0.19	Somewhat limited Slow water movement Large stones content	0.41 0.19	Somewhat limited Slow water movement Large stones content Slope	0.41 0.19 0.12
Raton-----	25	Very limited Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.39	Very limited Large stones content Depth to bedrock Slow water movement	1.00 1.00 0.39	Very limited Large stones content Depth to bedrock Slope Slow water movement	1.00 1.00 1.00 0.39

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BwA: Bloom-----	85	Very limited Depth to saturated zone Flooding Salinity Slow water movement	1.00 1.00 0.50 0.15	Very limited Depth to saturated zone Salinity Slow water movement	0.99 0.50 0.15	Very limited Depth to saturated zone Flooding Salinity Slow water movement	1.00 0.60 0.50 0.15
Bx: Boxcanyon-----	85	Somewhat limited Dusty Slow water movement	0.50 0.37	Somewhat limited Dusty Slow water movement	0.50 0.37	Somewhat limited Dusty Slow water movement	0.50 0.37
CaD: Razor-----	85	Very limited Sodium content Too clayey Slow water movement Slope	1.00 0.50 0.41 0.01	Very limited Sodium content Too clayey Slow water movement Slope	1.00 0.50 0.41 0.01	Very limited Slope Sodium content Depth to bedrock Too clayey Slow water movement	1.00 1.00 0.61 0.50 0.41
Rock outcrop-----	1	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CC: Chacuaco-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Depth to bedrock Slope	0.50 0.46 0.12
Capulin-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.12
Rock outcrop-----	1	Not rated		Not rated		Not rated	
CD: Chacuaco-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty Depth to bedrock	0.50 0.50 0.46
Dalero-----	30	Very limited Depth to bedrock Gravel content	1.00 0.16	Very limited Depth to bedrock Gravel content	1.00 0.16	Very limited Depth to bedrock Gravel content Slope	1.00 1.00 0.88
Rock outcrop-----	10	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Co: Collegiate-----	85	Very limited Flooding Depth to saturated zone	1.00 0.39	Somewhat limited Depth to saturated zone	0.19	Somewhat limited Flooding Depth to saturated zone Slope	0.60 0.39 0.12
CpA: Calemore-----	90	Not limited		Not limited		Not limited	
CpB: Calemore-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
CpC: Capulin-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
CpT: Capulin-----	45	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
Torreón-----	40	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slope Slow water movement	0.50 0.41

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ct: Breece-----	90	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
CwC: Cumulic Cryaquolls--	90	Very limited Depth to saturated zone	1.00	Very limited Slow water movement	1.00	Very limited Depth to saturated zone	1.00
		Flooding	1.00	Too clayey	1.00	Slow water	1.00
		Slow water movement	1.00	Depth to saturated zone	0.94	movement	
		Too clayey	1.00			Too clayey	1.00
						Flooding	0.60
						Slope	0.50
DaE: Dalerose-----	75	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00
		Slope	0.96	Slope	0.96	Gravel content	1.00
		Gravel content	0.16	Gravel content	0.16	Slope	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
De: Davtone-----	85	Not limited		Not limited		Very limited Slope	1.00

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DFV: Fuera-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41
Dargol-----	30	Very limited Slope Slow water movement Large stones content	1.00 0.45 0.19	Very limited Slope Slow water movement Large stones content	1.00 0.45 0.19	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 0.54 0.45 0.19
Vamer-----	20	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.19	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.19	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 1.00 0.41 0.19
Rock outcrop-----	5	Not rated		Not rated		Not rated	
DH: Davtone-----	45	Not limited		Not limited		Somewhat limited Slope Gravel content	0.50 0.01

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DH: Histic Cryaquolls---	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Slope	1.00 0.50
Dm: Demayo-----	85	Very limited Slope Large stones content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Large stones content Depth to bedrock	1.00 1.00 1.00	Very limited Slope Depth to bedrock Large stones content Gravel content	1.00 1.00 1.00 0.18
Rock outcrop-----	5	Not rated		Not rated		Not rated	
Ds: Des Moines-----	85	Very limited Slope Large stones content Dusty Slow water movement	1.00 1.00 0.50 0.41	Very limited Slope Large stones content Dusty Slow water movement	1.00 1.00 0.50 0.41	Very limited Slope Large stones content Dusty Slow water movement Gravel content	1.00 1.00 0.50 0.41 0.38
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Dt: Davtone-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope Gravel content	1.00 0.01
Dv: Feterita-----	95	Very limited Depth to saturated zone Ponding Dusty Slow water movement	1.00 1.00 0.50 0.45	Very limited Ponding Depth to saturated zone Dusty Slow water movement	1.00 1.00 0.50 0.45	Very limited Depth to saturated zone Ponding Dusty Slow water movement	1.00 1.00 0.50 0.45
Ec: Eguaje-----	50	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Large stones content Slope Gravel content	1.00 1.00 0.38
Demayo-----	35	Very limited Large stones content Depth to bedrock	1.00 1.00	Very limited Large stones content Depth to bedrock	1.00 1.00	Very limited Large stones content Slope Depth to bedrock Gravel content	1.00 1.00 1.00 0.18



Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EL: Ellicott-----	50	Very limited Flooding Too sandy	1.00 0.01	Somewhat limited Too sandy	0.01	Somewhat limited Flooding Too sandy	0.60 0.01
Las Animas-----	35	Very limited Flooding Depth to saturated zone	1.00 0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone	0.98
ES: Embargo-----	60	Somewhat limited Slow water movement Large stones content	0.39 0.19	Somewhat limited Slow water movement Large stones content	0.39 0.19	Somewhat limited Slope Depth to bedrock Gravel content Slow water movement Large stones content	0.88 0.84 0.56 0.39 0.19
Schwacheim-----	30	Very limited Large stones content Depth to bedrock Gravel content	1.00 1.00 0.12	Very limited Large stones content Depth to bedrock Gravel content	1.00 1.00 0.12	Very limited Depth to bedrock Gravel content Slope Large stones content	1.00 1.00 1.00 1.00
FcB: Wapiti-----	85	Not limited		Not limited		Not limited	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FcC: Fort-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
FcD: Fort-----	90	Not limited		Not limited		Somewhat limited Slope	0.50
Fp: Fishers-----	85	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41
FtC: Olnest-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
FuD: Bandarito-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slope Slow water movement	0.88 0.41

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FuE: Bandarito-----	85	Somewhat limited Slope Slow water movement	0.96 0.41	Somewhat limited Slope Slow water movement	0.96 0.41	Very limited Slope Slow water movement	1.00 0.41
FW: Bandarito-----	45	Somewhat limited Slope Slow water movement	0.63 0.41	Somewhat limited Slope Slow water movement	0.63 0.41	Very limited Slope Slow water movement	1.00 0.41
Fishers-----	40	Somewhat limited Slope Large stones content Slow water movement	0.96 0.76 0.41	Somewhat limited Slope Large stones content Slow water movement	0.96 0.76 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41
FyB: Furia-----	85	Very limited Depth to saturated zone Flooding Slow water movement	1.00 1.00 0.96	Very limited Depth to saturated zone Slow water movement	1.00 0.96	Very limited Depth to saturated zone Slow water movement Flooding	1.00 0.96 0.60

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GA: Gulnare-----	50	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.19	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.19	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.19
Allens Park-----	35	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Depth to bedrock Large stones content	1.00 0.80 0.19
GC: Groomer-----	50	Very limited Slope Slow water movement Large stones content	1.00 0.41 0.19	Very limited Slope Slow water movement Large stones content	1.00 0.41 0.19	Very limited Slope Gravel content Slow water movement Large stones content	1.00 0.54 0.41 0.19
Cucharas-----	40	Very limited Slow water movement Slope	1.00 1.00	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 0.29
Rock outcrop-----	5	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GgB: Glenberg-----	85	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
GmE: Aquic Dystrocryepts-	90	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Gravel content Large stones content	1.00 0.32 0.19
Gn: Angostura-----	90	Very limited Slope Large stones content	1.00 1.00	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope	1.00 1.00
GP: Pits, gravel-----	90	Not rated		Not rated		Not rated	
GR: Gulnare-----	60	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.19	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.19	Very limited Slope Depth to bedrock Large stones content	1.00 1.00 0.19
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Hn: Hoehne-----	90	Very limited Flooding	1.00	Not limited		Somewhat limited Flooding	0.60
HvA: Haversid-----	85	Very limited Flooding Dusty	1.00 0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
HyD: Humbarsprings-----	85	Somewhat limited Dusty Gravel content	0.50 0.14	Somewhat limited Dusty Gravel content	0.50 0.14	Very limited Gravel content Slope Dusty	1.00 1.00 0.50
K2D: Kimera-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty	1.00 0.50
Chicosa-----	35	Somewhat limited Dusty Large stones content Slope	0.50 0.18 0.01	Somewhat limited Dusty Large stones content Slope	0.50 0.18 0.01	Very limited Slope Gravel content Dusty Large stones content	1.00 0.86 0.50 0.18

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KI:							
Kandrix-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty	1.00 0.50
Chicosa-----	30	Somewhat limited Dusty Gravel content	0.50 0.10	Somewhat limited Dusty Gravel content	0.50 0.10	Very limited Gravel content Slope Dusty	1.00 1.00 0.50
Km:							
Kimera-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.12
KmC:							
Willid-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
Kimera-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty	1.00 0.50
KO:							
Kimera-----	46	Not limited		Not limited		Somewhat limited Slope	0.88

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KO: Oterodry-----	44	Not limited		Not limited		Somewhat limited Slope	0.88
Kw: Kandrix-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
KwC: Kandrix-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty	0.50 0.50
Wiley-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.12
La: Lanola-----	85	Very limited Depth to bedrock Gravel content Dusty Slope	1.00 0.68 0.50 0.04	Very limited Depth to bedrock Gravel content Dusty Slope	1.00 0.68 0.50 0.04	Very limited Depth to bedrock Gravel content Slope Dusty	1.00 1.00 1.00 0.50
Rock outcrop-----	8	Not rated		Not rated		Not rated	



Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Lb: La Brier-----	90	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41
Ld: Leadville-----	85	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content	1.00 0.76
LG: Manzanst-----	60	Somewhat limited Slow water movement	0.40	Somewhat limited Slow water movement	0.40	Very limited Slope Slow water movement	1.00 0.40
Ritoazul-----	30	Somewhat limited Too clayey Slow water movement Slope	0.50 0.45 0.01	Somewhat limited Too clayey Slow water movement Slope	0.50 0.45 0.01	Very limited Slope Too clayey Slow water movement Depth to bedrock	1.00 0.50 0.45 0.06
LH: Leadville-----	60	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content	1.00 0.76

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LH:							
Howlett-----	30	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Large stones content	1.00 0.19
Rock outcrop-----	2	Not rated		Not rated		Not rated	
Lo:							
La Brier-----	75	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement Slope	0.41 0.12
Rock outcrop-----	15	Not rated		Not rated		Not rated	
LoA:							
Limon-----	85	Very limited Flooding Slow water movement	1.00 0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41
LR:							
Fallriver-----	50	Very limited Slope Large stones content	1.00 1.00	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope	1.00 1.00
Rubble land-----	35	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LRT: Lorencito-----	40	Very limited Slope Depth to bedrock Gravel content Slow water movement	1.00 1.00 0.95 0.41	Very limited Slope Depth to bedrock Gravel content Slow water movement	1.00 1.00 0.95 0.41	Very limited Gravel content Slope Depth to bedrock Slow water movement	1.00 1.00 1.00 0.41
Rombo-----	30	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Gravel content Slow water movement Depth to bedrock	1.00 0.99 0.41 0.16
Sarcillo-----	20	Very limited Slope Depth to bedrock Dusty Slow water movement	1.00 1.00 0.50 0.41	Very limited Slope Depth to bedrock Dusty Slow water movement	1.00 1.00 0.50 0.41	Very limited Slope Depth to bedrock Dusty Slow water movement	1.00 1.00 0.50 0.41
Ls: Las Animas-----	85	Very limited Flooding Depth to saturated zone	1.00 0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone Flooding	0.98 0.60

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LST: Lorencito-----	40	Very limited Slope Depth to bedrock Gravel content Slow water movement	1.00 1.00 0.95 0.41	Very limited Slope Depth to bedrock Gravel content Slow water movement	1.00 1.00 0.95 0.41	Very limited Gravel content Slope Depth to bedrock Slow water movement	1.00 1.00 1.00 0.41
Sarcillo-----	30	Very limited Depth to bedrock Dusty Slow water movement Slope	1.00 0.50 0.41 0.04	Very limited Depth to bedrock Dusty Slow water movement Slope	1.00 0.50 0.41 0.04	Very limited Depth to bedrock Slope Dusty Slow water movement	1.00 1.00 0.50 0.41
Trujillo-----	20	Not limited		Not limited		Very limited Slope	1.00
Lt: Littlepine-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00
LvD: Lorencito-----	90	Very limited Depth to bedrock Slope Slow water movement	1.00 0.63 0.41	Very limited Depth to bedrock Slope Slow water movement	1.00 0.63 0.41	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.41

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LW: Littlepine-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Wahatoya-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
						Depth to bedrock	0.06
MaB: Mauricanyon, warm---	90	Very limited Flooding Dusty	1.00 0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
MaW: Mauricanyon, wet----	85	Very limited Flooding	1.00	Not limited		Not limited	
MD: Dumps, mine-----	100	Not rated		Not rated		Not rated	
Mf: Moran-----	85	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82	Very limited Slope Large stones content	1.00 0.82
Rock outcrop-----	5	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MG:							
Tercio-----	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Slow water movement	0.45	Slow water movement	0.45	Slow water movement	0.45
Graneros-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Slow water movement	0.41	Slow water movement	0.41	Slow water movement	0.41
						Depth to bedrock	0.29
Rock outcrop-----	2	Not rated		Not rated		Not rated	
MGR:							
Midway, moist-----	40	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00
		Too clayey	0.50	Too clayey	0.50	Slope	1.00
		Slow water movement	0.41	Slow water movement	0.41	Too clayey	0.50
		Slope	0.16	Slope	0.16	Slow water movement	0.41

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MGR: Ritoazul-----	35	Somewhat limited Too clayey Slow water movement	0.50 0.45	Somewhat limited Too clayey Slow water movement	0.50 0.45	Somewhat limited Too clayey Slow water movement Slope Depth to bedrock	0.50 0.45 0.12 0.06
Rock outcrop-----	15	Not rated		Not rated		Not rated	
MI: Minqwet-----	55	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Depth to bedrock Slope	0.50 0.46 0.12
Wiley-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.12
MIK: Midway-----	45	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 0.41	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 0.41	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 0.41

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MIK: Chicosa-----	40	Very limited Slope Dusty	1.00 0.50	Very limited Slope Dusty	1.00 0.50	Very limited Slope Gravel content Dusty	1.00 0.99 0.50
MnA: Manzanst-----	90	Somewhat limited Slow water movement	0.40	Somewhat limited Slow water movement	0.40	Somewhat limited Slow water movement	0.40
MnB: Manzanst-----	85	Somewhat limited Slow water movement	0.40	Somewhat limited Slow water movement	0.40	Somewhat limited Slow water movement	0.40
MnW: Aquic Haplustalfs---	90	Somewhat limited Slow water movement Depth to saturated zone	0.40 0.16	Somewhat limited Slow water movement Depth to saturated zone	0.40 0.08	Somewhat limited Slow water movement Depth to saturated zone	0.40 0.16
MoA: Mauricanyon-----	85	Very limited Flooding Dusty	1.00 0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50



Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoB: Mauricanyon, dry----	85	Very limited Flooding Dusty	1.00 0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
MoR: Mion-----	65	Very limited Slope Depth to bedrock Dusty Slow water movement	1.00 1.00 0.50 0.39	Very limited Slope Depth to bedrock Dusty Slow water movement	1.00 1.00 0.50 0.39	Very limited Slope Depth to bedrock Dusty Slow water movement	1.00 1.00 0.50 0.39
Rock outcrop-----	25	Not rated		Not rated		Not rated	
MP: Midway-----	40	Very limited Depth to bedrock Slow water movement Slope Gravel content	1.00 0.41 0.16 0.03	Very limited Depth to bedrock Slow water movement Slope Gravel content	1.00 0.41 0.16 0.03	Very limited Gravel content Depth to bedrock Slope Slow water movement	1.00 1.00 1.00 0.41
Razor-----	35	Very limited Sodium content Slow water movement	1.00 0.41	Very limited Sodium content Slow water movement	1.00 0.41	Very limited Sodium content Slow water movement	1.00 0.41
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MR: Mirror-----	70	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Depth to bedrock Gravel content	1.00 1.00 0.84 0.21
Rock outcrop-----	20	Not rated		Not rated		Not rated	
MvC: Manvel-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.12
MyD: Midway-----	85	Very limited Depth to bedrock Slow water movement Slope	1.00 0.41 0.04	Very limited Depth to bedrock Slow water movement Slope	1.00 0.41 0.04	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.41
Rock outcrop-----	1	Not rated		Not rated		Not rated	
MzA: Manzanola-----	85	Very limited Sodium content Slow water movement	1.00 0.41	Very limited Sodium content Slow water movement	1.00 0.41	Very limited Sodium content Slow water movement	1.00 0.41

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MzB: Manzanola-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41
NM: Nopurg-----	45	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Slow water movement	0.41	Slow water movement	0.41	Slow water movement	0.41
Mitotes-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Slow water movement	0.41	Slow water movement	0.41	Slow water movement	0.41
		Large stones content	0.19	Large stones content	0.19	Large stones content	0.19
OeC: Otero-----	85	Not limited		Not limited		Somewhat limited Slope	0.50
OtD: Oterodry-----	85	Not limited		Not limited		Somewhat limited Slope	0.88

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OyB: Olnest-----	90	Not limited		Not limited		Not limited	
OyC: Olnest-----	85	Not limited		Not limited		Somewhat limited Slope	0.88
PeD: Penrose-----	85	Very limited Depth to bedrock Dusty	1.00 0.50	Very limited Depth to bedrock Dusty	1.00 0.50	Very limited Depth to bedrock Slope Dusty	1.00 0.88 0.50
Rock outcrop-----	5	Not rated		Not rated		Not rated	
PeF: Penrose-----	40	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50
Midway-----	35	Very limited Slope Depth to bedrock Too clayey Slow water movement	1.00 1.00 0.50 0.41	Very limited Slope Depth to bedrock Too clayey Slow water movement	1.00 1.00 0.50 0.41	Very limited Slope Depth to bedrock Too clayey Slow water movement	1.00 1.00 0.50 0.41
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PM:							
Penrose-----	50	Very limited Depth to bedrock Dusty Slope	1.00 0.50 0.04	Very limited Depth to bedrock Dusty Slope	1.00 0.50 0.04	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50
Minnequa-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock Slope Dusty	0.54 0.50 0.50
Rock outcrop-----	5	Not rated		Not rated		Not rated	
PnD:							
Penrose, moist-----	85	Very limited Depth to bedrock Dusty Slope	1.00 0.50 0.04	Very limited Depth to bedrock Dusty Slope	1.00 0.50 0.04	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50
Rock outcrop-----	2	Not rated		Not rated		Not rated	
RaB:							
Ravine-----	85	Somewhat limited Slow water movement	0.39	Somewhat limited Slow water movement	0.39	Somewhat limited Slow water movement	0.39

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RaC: Ritoazul-----	85	Somewhat limited Too clayey Slow water movement	0.50 0.45	Somewhat limited Too clayey Slow water movement	0.50 0.45	Somewhat limited Too clayey Slow water movement Slope Depth to bedrock	0.50 0.45 0.12 0.06
RB: Raton-----	65	Very limited Large stones content Depth to bedrock Slow water movement Slope	1.00 1.00 0.39 0.04	Very limited Large stones content Depth to bedrock Slow water movement Slope	1.00 1.00 0.39 0.04	Very limited Depth to bedrock Large stones content Slope Slow water movement	1.00 1.00 1.00 0.39
Barela-----	25	Somewhat limited Slow water movement Large stones content	0.41 0.19	Somewhat limited Slow water movement Large stones content	0.41 0.19	Somewhat limited Slope Slow water movement Large stones content	0.50 0.41 0.19
Rock outcrop-----	5	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rc: Raku-----	85	Somewhat limited Dusty Slow water movement	0.50 0.39	Somewhat limited Dusty Slow water movement	0.50 0.39	Somewhat limited Dusty Slow water movement	0.50 0.39
RCA: Raku-----	90	Somewhat limited Slow water movement	0.39	Somewhat limited Slow water movement	0.39	Somewhat limited Slow water movement	0.39
Rd: Romound-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Depth to bedrock Slope	0.50 0.46 0.12
RF: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Rubble land-----	50	Not rated		Not rated		Not rated	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rt: Raton-----	90	Very limited Large stones content Depth to bedrock Slope Slow water movement	1.00 1.00 0.63 0.39	Very limited Large stones content Depth to bedrock Slope Slow water movement	1.00 1.00 0.63 0.39	Very limited Depth to bedrock Large stones content Slope Slow water movement	1.00 1.00 1.00 0.39
Rock outcrop-----	5	Not rated		Not rated		Not rated	
RyC: Ryegate-----	90	Not limited		Not limited		Somewhat limited Slope Depth to bedrock	0.88 0.16
RzD: Rizozo, moist-----	75	Very limited Depth to bedrock Slope Gravel content	1.00 0.63 0.01	Very limited Depth to bedrock Slope Gravel content	1.00 0.63 0.01	Very limited Depth to bedrock Gravel content Slope	1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	



Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sc: Schwacheim-----	90	Very limited Large stones content Depth to bedrock Slope Gravel content	1.00 1.00 0.63 0.12	Very limited Large stones content Depth to bedrock Slope Gravel content	1.00 1.00 0.63 0.12	Very limited Depth to bedrock Gravel content Large stones content Slope	1.00 1.00 1.00 1.00
Rock outcrop-----	5	Not rated		Not rated		Not rated	
ScR: Schwacheim-----	70	Very limited Large stones content Slope Depth to bedrock Gravel content	1.00 1.00 1.00 1.00 0.12	Very limited Large stones content Slope Depth to bedrock Gravel content	1.00 1.00 1.00 1.00 0.12	Very limited Depth to bedrock Gravel content Slope Large stones content	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
SG: Ovmesa-----	50	Very limited Salinity Slope Depth to bedrock Dusty Slow water movement	1.00 1.00 1.00 0.50 0.39	Very limited Salinity Slope Depth to bedrock Dusty Slow water movement	1.00 1.00 1.00 0.50 0.39	Very limited Slope Salinity Depth to bedrock Dusty Slow water movement	1.00 1.00 1.00 0.50 0.39

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SG: Romound-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Dusty Depth to bedrock	1.00 0.50 0.46
ShD: Shingle-----	65	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Slope Depth to bedrock	1.00 1.00
Penrose-----	23	Very limited Depth to bedrock Dusty Slope	1.00 0.50 0.04	Very limited Depth to bedrock Dusty Slope	1.00 0.50 0.04	Very limited Slope Depth to bedrock Dusty	1.00 1.00 0.50
Rock outcrop-----	2	Not rated		Not rated		Not rated	
SL: Scandard-----	45	Very limited Slope Salinity Large stones content	1.00 1.00 1.00	Very limited Slope Salinity Large stones content	1.00 1.00 1.00	Very limited Slope Salinity Large stones content Depth to bedrock	1.00 1.00 1.00 0.71

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SL: Leadville-----	30	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content	1.00 0.76
Rock outcrop-----	15	Not rated		Not rated		Not rated	
SM: Schamber-----	65	Somewhat limited Slope Gravel content	0.96 0.88	Somewhat limited Slope Gravel content	0.96 0.88	Very limited Gravel content Slope	1.00 1.00
Midway-----	25	Very limited Depth to bedrock Slope Slow water movement	1.00 0.96 0.41	Very limited Depth to bedrock Slope Slow water movement	1.00 0.96 0.41	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.41
Sn: Sitcan-----	90	Not limited		Not limited		Somewhat limited Slope	0.12

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SR: Saruche-----	40	Very limited Slope Depth to bedrock Large stones content Gravel content Slow water movement	1.00 1.00 0.76 0.65 0.41	Very limited Slope Depth to bedrock Large stones content Gravel content Slow water movement	1.00 1.00 0.76 0.65 0.41	Very limited Gravel content Slope Depth to bedrock Large stones content Slow water movement	1.00 1.00 1.00 0.76 0.41
Rombo-----	35	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Slow water movement	1.00 0.41	Very limited Slope Gravel content Slow water movement Depth to bedrock	1.00 0.99 0.41 0.16
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Sw: Molinaro-----	90	Not limited		Not limited		Very limited Slope	1.00
TbA: Trementina, warm----	90	Very limited Flooding Dusty	1.00 0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TeE: Tecolote-----	90	Very limited Large stones content Slope	1.00  0.16	Very limited Large stones content Slope	1.00  0.16	Very limited Slope Large stones content	1.00  1.00
TF: Torreon, stony-----	50	Somewhat limited Large stones content Slope Slow water movement	0.76  0.63 0.41	Somewhat limited Large stones content Slope Slow water movement	0.76  0.63 0.41	Very limited Slope Large stones content Slow water movement	1.00  0.76 0.41
Fuera-----	35	Very limited Slope Large stones content Slow water movement	1.00  0.76 0.41	Very limited Slope Large stones content Slow water movement	1.00  0.76 0.41	Very limited Slope Large stones content Slow water movement	1.00  0.76 0.41
TgD: Trujillo-----	90	Not limited		Not limited		Very limited Slope	1.00
TgE: Trujillo-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TL: Torreon, stony-----	55	Somewhat limited Large stones content Slope Slow water movement	0.76  0.63 0.41	Somewhat limited Large stones content Slope Slow water movement	0.76  0.63 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41
Lorencito-----	35	Very limited Slope Depth to bedrock Slow water movement Gravel content	1.00 1.00 0.41 0.26	Very limited Slope Depth to bedrock Slow water movement Gravel content	1.00 1.00 0.41 0.26	Very limited Gravel content Slope Depth to bedrock Slow water movement	1.00 1.00 1.00 0.41
TmD: Trujillo-----	90	Not limited		Not limited		Very limited Slope	1.00
TnA: Trementina, cool----	90	Very limited Flooding	1.00	Not limited		Not limited	
TnB: Trementina, dry-----	85	Very limited Flooding Dusty	1.00 0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
To: Torreon-----	85	Somewhat limited Dusty Slow water movement	0.50 0.41	Somewhat limited Dusty Slow water movement	0.50 0.41	Somewhat limited Dusty Slow water movement Slope	0.50 0.41 0.12
ToD: Torreon-----	85	Somewhat limited Slow water movement	0.41	Somewhat limited Slow water movement	0.41	Very limited Slope Slow water movement	1.00 0.41
ToE: Torreon-----	50	Somewhat limited Dusty Slow water movement Slope	0.50 0.41 0.16	Somewhat limited Dusty Slow water movement Slope	0.50 0.41 0.16	Very limited Slope Dusty Slow water movement	1.00 0.50 0.41
Torreon, stony-----	45	Somewhat limited Slope Large stones content Slow water movement	0.84 0.76 0.41	Somewhat limited Slope Large stones content Slow water movement	0.84 0.76 0.41	Very limited Slope Large stones content Slow water movement	1.00 0.76 0.41

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TsD: Travessilla-----	75	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
TsE: Torreon-----	90	Very limited Large stones content Slope Slow water movement	1.00 0.84 0.41	Very limited Large stones content Slope Slow water movement	1.00 0.84 0.41	Very limited Large stones content Slope Slow water movement	1.00 1.00 0.41
TsF: Travessilla-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	
Us: Aridic Calciustolls-	60	Very limited Slope Large stones content	1.00 1.00	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope	1.00 1.00
Rock outcrop-----	5	Not rated		Not rated		Not rated	



Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VB: Vona, overblown-----	85	Somewhat limited Too sandy	0.52	Somewhat limited Too sandy	0.52	Somewhat limited Too sandy	0.52
VD: Dargol-----	40	Somewhat limited Slow water movement Large stones content	0.45  0.19	Somewhat limited Slow water movement Large stones content	0.45  0.19	Very limited Slope Depth to bedrock Slow water movement Large stones content	1.00 0.54 0.45 0.19
Stout-----	25	Very limited Depth to bedrock Large stones content	1.00 0.76	Very limited Depth to bedrock Large stones content	1.00 0.76	Very limited Depth to bedrock Large stones content Slope	1.00 0.76 0.50
Vamer-----	20	Very limited Depth to bedrock Slow water movement Large stones content	1.00 0.41 0.19	Very limited Depth to bedrock Slow water movement Large stones content	1.00 0.41 0.19	Very limited Depth to bedrock Slope Slow water movement Large stones content	1.00 0.50 0.41 0.19

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VnC: Vona-----	85	Not limited		Not limited		Somewhat limited Slope	0.88
VoB: Vona-----	85	Not limited		Not limited		Not limited	
VoC: Vonid-----	85	Not limited		Not limited		Somewhat limited Slope	0.88
VT: Villedry-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope Dusty Depth to bedrock	0.50 0.50 0.01
Travessilla-----	40	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Slope	1.00 0.50
Rock outcrop-----	2	Not rated		Not rated		Not rated	
VtC: Valent-----	85	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Very limited Too sandy Slope	1.00 0.88

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wapiti-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
WC: Plughat-----	43	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.12
Villegreen-----	41	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Depth to bedrock Slope	0.50 0.29 0.12
Rock outcrop-----	1	Not rated		Not rated		Not rated	
WeB: Wiley-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
WM: Minnequa-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WM: Wilid-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.12
WrB: Wilid-----	90	Not limited		Not limited		Not limited	
WV: Almagre-----	45	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope	0.50 0.12
Villedry-----	44	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty Slope Depth to bedrock	0.50 0.12 0.01
Rock outcrop-----	1	Not rated		Not rated		Not rated	
WyB: Wilid-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50
YaA: Yattle-----	90	Not limited		Not limited		Not limited	

Table 10.--Camp areas, picnic areas, and playgrounds--continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
YaC: Yattle-----	90	Not limited		Not limited		Somewhat limited Slope	0.50
ZR: Rizozo-----	75	Very limited Depth to bedrock Slope Dusty Gravel content	1.00 0.63 0.50 0.01	Very limited Depth to bedrock Slope Dusty Gravel content	1.00 0.63 0.50 0.01	Very limited Depth to bedrock Gravel content Slope Dusty	1.00 1.00 1.00 0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	
ZRF: Rizozo-----	75	Very limited Slope Depth to bedrock Dusty Gravel content	1.00 1.00 0.50 0.01	Very limited Slope Depth to bedrock Dusty Gravel content	1.00 1.00 0.50 0.01	Very limited Slope Depth to bedrock Gravel content Dusty	1.00 1.00 1.00 0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 11.--Paths, trails, and golf fairways

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AA: Ayon-----	45	Very limited Large stones content Dusty	1.00  0.50	Very limited Large stones content Dusty	1.00  0.50	Very limited Carbonate content Large stones content Droughty Gravel content	1.00 0.99  0.84 0.07
Apache-----	40	Very limited Large stones content Dusty	1.00  0.50	Very limited Large stones content Dusty	1.00  0.50	Very limited Depth to bedrock Droughty Large stones content	1.00 1.00 0.84
AC: Ayon-----	50	Very limited Large stones content Dusty	1.00  0.50	Very limited Large stones content Dusty	1.00  0.50	Very limited Large stones content Slope Droughty	1.00  0.96 0.54
Capulin-----	45	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AcC: Acantilado-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
AED: Dams, earthen dam---	100	Not rated		Not rated		Not rated	
AnB: Ascalon-----	85	Not limited		Not limited		Not limited	
Ap: Apache-----	85	Very limited Large stones content Dusty	1.00 0.50	Very limited Large stones content Dusty	1.00 0.50	Very limited Depth to bedrock Droughty Slope Large stones content	1.00 1.00 1.00 0.84
AR: Calcidic Argiustolls	65	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content Droughty	1.00 1.00 0.03
Rock outcrop-----	15	Not rated		Not rated		Not rated	
AsB: Ascalon, overblown--	85	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AV: Aguilar-----	45	Not limited		Not limited		Very limited Sodium content Salinity	1.00 0.01
Beckton-----	45	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Sodium content Salinity Droughty	1.00 1.00 0.01
AvC: Aguilar-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Sodium content	1.00
AW: Allens Park-----	45	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Large stones content	1.00 0.19	Very limited Slope Depth to bedrock	1.00 0.03
Wahatoya-----	40	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Droughty Depth to bedrock	1.00 0.07 0.06
BaA: Baca-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	



Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BaB: Bacid-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
BaC: Baca, cool-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
BcA: Baca, cool-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Bk: Fallriver-----	85	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope	1.00 1.00	Very limited Slope Droughty	1.00 0.98
BnA: Bacid-----	85	Not limited		Not limited		Not limited	
BT: Barela-----	60	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.26

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BT: Raton-----	25	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Droughty Depth to bedrock Large stones content	1.00 1.00 1.00
BwA: Bloom-----	85	Somewhat limited Depth to saturated zone	0.99	Somewhat limited Depth to saturated zone	0.99	Very limited Depth to saturated zone Flooding Salinity	0.99 0.60 0.50
Bx: Boxcanyon-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Carbonate content	1.00
CaD: Razor-----	85	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Too clayey Sodium content Depth to bedrock Slope	1.00 1.00 0.61 0.01
CC: Chacuaco-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CC: Capulin-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
CD: Chacuaco-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
Dalero-----	30	Not limited		Not limited		Very limited Droughty Depth to bedrock Gravel content	1.00 1.00 0.16
Co: Collegiate-----	85	Not limited		Not limited		Somewhat limited Flooding Depth to saturated zone	0.60 0.19
CpA: Calemore-----	90	Not limited		Not limited		Not limited	
CpB: Calemore-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
CpC: Capulin-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpT: Capulin-----	45	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Torreon-----	40	Not limited		Not limited		Not limited	
Ct: Breece-----	90	Not limited		Not limited		Somewhat limited Slope	0.16
CwC: Cumulic Cryaquolls--	90	Very limited Too clayey Depth to saturated zone	1.00 0.86	Very limited Too clayey Depth to saturated zone	1.00 0.86	Very limited Too clayey Depth to saturated zone Flooding	1.00 0.94 0.60
DaE: Dalerose-----	75	Not limited		Not limited		Very limited Droughty Depth to bedrock Slope Gravel content	1.00 1.00 0.96 0.16
Rock outcrop-----	15	Not rated		Not rated		Not rated	
De: Davtone-----	85	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DFV:							
Fuera-----	35	Very limited Slope	1.00	Somewhat limited Slope	0.08	Very limited Slope	1.00
Dargol-----	30	Very limited Slope Large stones content	1.00 0.19	Somewhat limited Large stones content Slope	0.19 0.08	Very limited Slope Depth to bedrock	1.00 0.54
Vamer-----	20	Very limited Slope Large stones content	1.00 0.19	Somewhat limited Large stones content	0.19	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.78
DH:							
Davtone-----	45	Not limited		Not limited		Not limited	
Histic Cryaquolls---	40	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00
Dm:							
Demayo-----	85	Very limited Large stones content Slope	1.00 0.18	Very limited Large stones content	1.00	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 1.00

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ds: Des Moines-----	85	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Slope Large stones content	1.00 0.92
		Slope Dusty	1.00 0.50	Slope Dusty	0.56 0.50	Droughty	0.48
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Dt: Davtone-----	85	Not limited		Not limited		Somewhat limited Slope	0.84
Dv: Feterita-----	95	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Dusty	0.50	Dusty	0.50		
Ec: Eguaje-----	50	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Somewhat limited Large stones content Droughty	0.92 0.01

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ec: Demayo-----	35	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Large stones content Droughty Depth to bedrock	1.00 1.00 1.00
EL: Ellicott-----	50	Somewhat limited Too sandy	0.01	Somewhat limited Too sandy	0.01	Somewhat limited Flooding	0.60
Las Animas-----	35	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone Flooding	0.75 0.60
ES: Embargo-----	60	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.19	Somewhat limited Droughty Depth to bedrock Large stones content	0.90 0.84 0.68
Schwacheim-----	30	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Droughty Depth to bedrock Gravel content Large stones content	1.00 1.00 0.12 0.11

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FCB: Wapiti-----	85	Not limited		Not limited		Not limited	
FcC: Fort-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
FcD: Fort-----	90	Not limited		Not limited		Not limited	
Fp: Fishers-----	85	Very limited Slope Large stones content	1.00 0.76	Somewhat limited Large stones content Slope	0.76 0.22	Very limited Slope Droughty	1.00 0.03
FtC: Olnest-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
FuD: Bandarito-----	85	Not limited		Not limited		Not limited	
FuE: Bandarito-----	85	Not limited		Not limited		Somewhat limited Slope	0.96



Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FW: Bandarito-----	45	Not limited		Not limited		Somewhat limited Slope	0.63
Fishers-----	40	Somewhat limited Large stones content	0.76	Somewhat limited Large stones content	0.76	Somewhat limited Slope Droughty	0.96 0.03
FyB: Furia-----	85	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone Flooding	1.00 0.60
GA: Gulnare-----	50	Somewhat limited Large stones content Slope	0.19 0.18	Somewhat limited Large stones content	0.19	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.78
Allens Park-----	35	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.19	Very limited Slope Depth to bedrock Droughty	1.00 0.80 0.41

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GC: Groomer-----	50	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.19	Very limited Slope	1.00
Cucharas-----	40	Somewhat limited Slope	0.92	Not limited		Very limited Slope Depth to bedrock	1.00 0.29
GgB: Glenberg-----	85	Not limited		Not limited		Somewhat limited Flooding	0.60
GmE: Aquic Dystrocryepts-	90	Somewhat limited Large stones content Slope	0.19 0.18	Somewhat limited Large stones content	0.19	Very limited Slope Large stones content	1.00 0.88
Gn: Angostura-----	90	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope	1.00 1.00	Very limited Slope Droughty	1.00 0.04

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GP: Pits, gravel-----	90	Very limited Too sandy Large stones content	1.00 0.04	Very limited Too sandy Large stones content	1.00 0.04	Not rated	
GR: Gulnare-----	60	Very limited Slope Large stones content	1.00 0.19	Somewhat limited Large stones content	0.19	Very limited Slope Depth to bedrock Droughty	1.00 1.00 0.78
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Hn: Hoehne-----	90	Not limited		Not limited		Somewhat limited Flooding	0.60
HvA: Haversid-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
HyD: Humbarsprings-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Gravel content Droughty Large stones content	0.14 0.04 0.01

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
K2D:							
Kimera-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Chicosa-----	35	Somewhat limited Dusty Large stones content	0.50 0.18	Somewhat limited Dusty Large stones content	0.50 0.18	Very limited Large stones content Droughty Slope	1.00 0.33 0.01
KI:							
Kandrix-----	60	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Chicosa-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Droughty Large stones content Gravel content	0.71 0.32 0.10
Km:							
Kimera-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
KmC:							
Wilid-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KmC:							
Kimera-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
KO:							
Kimera-----	46	Not limited		Not limited		Not limited	
Oterodry-----	44	Not limited		Not limited		Not limited	
Kw:							
Kandrix-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
KwC:							
Kandrix-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Wiley-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
La:							
Lanola-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Droughty Depth to bedrock Carbonate content Gravel content Slope	1.00 1.00 1.00 0.68 0.04

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Lb: La Brier-----	90	Not limited		Not limited		Not limited	
Ld: Leadville-----	85	Somewhat limited Slope Large stones content	0.92 0.76	Somewhat limited Large stones content	0.76	Very limited Slope Droughty	1.00 0.02
LG: Manzanst-----	60	Not limited		Not limited		Not limited	
Ritoazul-----	30	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Too clayey Depth to bedrock Slope	1.00 0.06 0.01
LH: Leadville-----	60	Very limited Slope Large stones content	1.00 0.76	Somewhat limited Large stones content Slope	0.76 0.08	Very limited Slope Droughty	1.00 0.02
Howlett-----	30	Somewhat limited Slope  Large stones content	0.92  0.19	Somewhat limited Large stones content	0.19	Very limited Slope	1.00



Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LRT: Rombo-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Depth to bedrock Large stones content	1.00 0.16 0.01
Sarcillo-----	20	Very limited Slope Water erosion Dusty	1.00 1.00 0.50	Very limited Water erosion Dusty Slope	1.00 0.50 0.44	Very limited Slope Depth to bedrock Droughty	1.00 1.00 0.81
Ls: Las Animas-----	85	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone	0.44	Somewhat limited Depth to saturated zone Flooding	0.75 0.60
LST: Lorencito-----	40	Somewhat limited Slope	0.18	Not limited		Very limited Depth to bedrock Slope Gravel content Droughty	1.00 1.00 0.95 0.86
Sarcillo-----	30	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Very limited Depth to bedrock Droughty Slope	1.00 0.81 0.04



Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LST: Trujillo-----	20	Not limited		Not limited		Not limited	
Lt: Littlepine-----	85	Not limited		Not limited		Somewhat limited Slope	0.04
LvD: Lorencito-----	90	Not limited		Not limited		Very limited Depth to bedrock Slope Droughty	1.00 0.63 0.42
LW: Littlepine-----	50	Somewhat limited Slope	0.92	Not limited		Very limited Slope	1.00
Wahatoya-----	35	Very limited Slope Large stones content	1.00 1.00	Very limited Large stones content Slope	1.00 0.78	Very limited Slope Droughty Depth to bedrock	1.00 0.07 0.06
MaB: Mauricanyon, warm---	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
MaW: Mauricanyon, wet----	85	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MD: Dumps, mine-----	100	Not rated		Not rated		Not rated	
Mf: Moran-----	85	Somewhat limited Slope Large stones content	0.92 0.82	Somewhat limited Large stones content	0.82	Very limited Large stones content Slope Droughty	1.00 1.00 0.76
MG: Tercio-----	60	Very limited Slope	1.00	Somewhat limited Slope	0.08	Very limited Slope	1.00
Graneros-----	30	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope	1.00 0.08	Very limited Slope Depth to bedrock	1.00 0.29
MGR: Midway, moist-----	40	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Depth to bedrock Too clayey Droughty Slope	1.00 1.00 0.90 0.16
Ritoazul-----	35	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Too clayey Depth to bedrock	1.00 0.06

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MGR: Rock outcrop-----	15	Not rated		Not rated		Not rated	
MI: Mingwet-----	55	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
Wiley-----	30	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
MIK: Midway-----	45	Very limited Slope	1.00	Not limited		Very limited Slope Depth to bedrock Droughty	1.00 1.00 0.46
Chicosa-----	40	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Slope Droughty Large stones content	1.00 0.38 0.03
MnA: Manzanst-----	90	Not limited		Not limited		Not limited	
MnB: Manzanst-----	85	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MnW: Aquic Haplustalfs---	90	Not limited		Not limited		Somewhat limited Depth to saturated zone	0.08
MoA: Mauricanyon-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
MoB: Mauricanyon, dry----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
MoR: Mion-----	65	Somewhat limited Dusty Slope	0.50 0.08	Somewhat limited Dusty	0.50	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.91
Rock outcrop-----	25	Not rated		Not rated		Not rated	
MP: Midway-----	40	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope Gravel content	1.00 0.99 0.16 0.03

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MP: Razor-----	35	Not limited		Not limited		Very limited Sodium content Depth to bedrock	1.00 0.54
Rock outcrop-----	15	Not rated		Not rated		Not rated	
MR: Mirror-----	70	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content Droughty Depth to bedrock	1.00 1.00 1.00 0.84
Rock outcrop-----	20	Not rated		Not rated		Not rated	
MvC: Manvel-----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
MyD: Midway-----	85	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope	1.00 0.92 0.04

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MzA: Manzanola-----	85	Not limited		Not limited		Very limited Sodium content	1.00
MzB: Manzanola-----	85	Not limited		Not limited		Not limited	
NM: Nopurg-----	45	Very limited Slope Large stones content	1.00 1.00	Very limited Large stones content Slope	1.00 0.22	Very limited Slope Droughty	1.00 0.10
Mitotes-----	40	Very limited Slope Large stones content	1.00 0.19	Somewhat limited Large stones content Slope	0.19 0.01	Very limited Slope	1.00
OeC: Otero-----	85	Not limited		Not limited		Not limited	
OtD: Oterodry-----	85	Not limited		Not limited		Not limited	
OyB: Olnest-----	90	Not limited		Not limited		Not limited	
OyC: Olnest-----	85	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeD: Penrose-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Depth to bedrock Carbonate content Droughty	1.00 1.00 0.90
PeF: Penrose-----	40	Very limited Water erosion Dusty Slope	1.00 0.50 0.18	Very limited Water erosion Dusty	1.00 0.50	Very limited Depth to bedrock Slope Carbonate content Droughty	1.00 1.00 1.00 0.90
Midway-----	35	Very limited Slope Too clayey	1.00 0.50	Somewhat limited Too clayey	0.50	Very limited Slope Depth to bedrock Too clayey Droughty	1.00 1.00 1.00 0.99
Rock outcrop-----	15	Not rated		Not rated		Not rated	
PM: Penrose-----	50	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Very limited Depth to bedrock Carbonate content Droughty Slope	1.00 1.00 0.90 0.04

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PM: Minnequa-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock Droughty	0.54 0.03
PnD: Penrose, moist-----	85	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Very limited Droughty Depth to bedrock Carbonate content Slope	1.00 1.00 1.00 0.04
RaB: Ravine-----	85	Not limited		Not limited		Somewhat limited Depth to bedrock	0.61
RaC: Ritoazul-----	85	Somewhat limited Too clayey	0.50	Somewhat limited Too clayey	0.50	Very limited Too clayey Depth to bedrock	1.00 0.06
RB: Raton-----	65	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Droughty Depth to bedrock Large stones content Slope	1.00 1.00 1.00 0.04



Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RB: Barela-----	25	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.26
Rc: Raku-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
RcA: Raku-----	90	Not limited		Not limited		Not limited	
Rd: Romound-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
RF: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Rubble land-----	50	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Not rated	
		Slope	1.00	Slope	1.00		
		Too sandy	1.00	Too sandy	1.00		

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rt: Raton-----	90	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Droughty Depth to bedrock Large stones content Slope	1.00 1.00 1.00 0.63
RyC: Ryegate-----	90	Not limited		Not limited		Somewhat limited Depth to bedrock	0.16
RzD: Rizozo, moist-----	75	Not limited		Not limited		Very limited Droughty Depth to bedrock Slope Gravel content	1.00 1.00 0.63 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Sc: Schwacheim-----	90	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Droughty Depth to bedrock Slope Gravel content Large stones content	1.00 1.00 0.63 0.12 0.11

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ScR: Schwacheim-----	70	Very limited Large stones content Slope	1.00  0.08	Very limited Large stones content	1.00	Very limited Droughty Depth to bedrock Slope Gravel content Large stones content	1.00 1.00 1.00 0.12 0.11
Rock outcrop-----	20	Not rated		Not rated		Not rated	
SG: Ovmesa-----	50	Very limited Water erosion Slope Dusty	1.00 0.50 0.50	Very limited Water erosion Dusty	1.00 0.50	Very limited Salinity Droughty Depth to bedrock Slope	1.00 1.00 1.00 1.00
Romound-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.46
ShD: Shingle-----	65	Not limited		Not limited		Very limited Depth to bedrock Droughty Slope	1.00 1.00 0.04

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ShD: Penrose-----	23	Very limited Water erosion Dusty	1.00 0.50	Very limited Water erosion Dusty	1.00 0.50	Very limited Depth to bedrock Carbonate content Droughty Slope	1.00 1.00 0.90 0.04
SL: Scandard-----	45	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Salinity Droughty Depth to bedrock	1.00 1.00 0.96 0.71
Leadville-----	30	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Large stones content	1.00 0.76	Very limited Slope Droughty	1.00 0.02
Rock outcrop-----	15	Not rated		Not rated		Not rated	
SM: Schamber-----	65	Not limited		Not limited		Very limited Droughty Slope Gravel content	1.00 0.96 0.88

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SM: Midway-----	25	Not limited		Not limited		Very limited Depth to bedrock Slope Droughty	1.00 0.96 0.92
Sn: Sitcan-----	90	Not limited		Not limited		Not limited	
SR: Saruche-----	40	Very limited Slope Large stones content	1.00 0.76	Somewhat limited Slope Large stones content	0.92 0.76	Very limited Slope Depth to bedrock Droughty Gravel content Large stones content	1.00 1.00 0.81 0.65 0.03
Rombo-----	35	Very limited Slope	1.00	Somewhat limited Slope	0.92	Very limited Slope Depth to bedrock Large stones content	1.00 0.16 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Sw: Molinaro-----	90	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TbA: Trementina, warm----	90	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
TeE: Tecolote-----	90	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Somewhat limited Droughty Slope	0.44 0.16
TF: Torreon, stony-----	50	Somewhat limited Large stones content	0.76	Somewhat limited Large stones content	0.76	Very limited Large stones content Slope	1.00 0.63
Fuera-----	35	Somewhat limited Slope Large stones content	0.92 0.76	Somewhat limited Large stones content	0.76	Very limited Slope	1.00
TgD: Trujillo-----	90	Not limited		Not limited		Not limited	
TgE: Trujillo-----	90	Somewhat limited Slope	0.08	Not limited		Very limited Slope	1.00

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TL: Torreon, stony-----	55	Somewhat limited Large stones content	0.76	Somewhat limited Large stones content	0.76	Very limited Large stones content Slope	1.00 0.63
Lorencito-----	35	Somewhat limited Slope	0.50	Not limited		Very limited Droughty Depth to bedrock Slope Gravel content	1.00 1.00 1.00 0.26
TmD: Trujillo-----	90	Not limited		Not limited		Not limited	
TnA: Trementina, cool----	90	Not limited		Not limited		Not limited	
TnB: Trementina, dry-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
To: Torreon-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
ToD: Torreon-----	85	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ToE: Torreon-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Slope	0.16
Torreon, stony-----	45	Somewhat limited Large stones content	0.76	Somewhat limited Large stones content	0.76	Very limited Large stones content Slope	1.00 0.84
TsD: Travessilla-----	75	Not limited		Not limited		Very limited Droughty Depth to bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
TsE: Torreon-----	90	Very limited Large stones content	1.00	Very limited Large stones content	1.00	Very limited Large stones content Slope	1.00 0.84
TsF: Travessilla-----	50	Very limited Slope	1.00	Somewhat limited Slope	0.78	Very limited Slope Droughty Depth to bedrock	1.00 1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	



Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Us: Aridic Calciustolls-	60	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content	1.00	Very limited Slope Carbonate content	1.00 1.00
VB: Vona, overblown-----	85	Somewhat limited Too sandy	0.52	Somewhat limited Too sandy	0.52	Not limited	
VD: Dargol-----	40	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.19	Somewhat limited Depth to bedrock	0.54
Stout-----	25	Somewhat limited Large stones content	0.76	Somewhat limited Large stones content	0.76	Very limited Depth to bedrock Droughty	1.00 1.00
Vamer-----	20	Somewhat limited Large stones content	0.19	Somewhat limited Large stones content	0.19	Very limited Depth to bedrock Droughty	1.00 0.78
VnC: Vona-----	85	Not limited		Not limited		Not limited	
VoB: Vona-----	85	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VoC: Vonid-----	85	Not limited		Not limited		Not limited	
VT: Villedry-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.01
Travessilla-----	40	Not limited		Not limited		Very limited Droughty Depth to bedrock	1.00 1.00
VtC: Valent-----	85	Very limited Too sandy	1.00	Very limited Too sandy	1.00	Somewhat limited Droughty	0.38
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wapiti-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
WC: Plughat-----	43	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Villegreen-----	41	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.29

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WeB: Wiley-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
WM: Minnequa-----	50	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock Droughty	0.54 0.03
Wilid-----	35	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
WrB: Wilid-----	90	Not limited		Not limited		Not limited	
WV: Almagre-----	45	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
Villedry-----	44	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Somewhat limited Depth to bedrock	0.01
WyB: Wilid-----	85	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Not limited	
YaA: Yattle-----	90	Not limited		Not limited		Not limited	

Table 11.--Paths, trails, and golf fairways--continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
YaC: Yattle-----	90	Not limited		Not limited		Not limited	
ZR: Rizozo-----	75	Somewhat limited Dusty	0.50	Somewhat limited Dusty	0.50	Very limited Droughty Depth to bedrock Slope Gravel content	1.00 1.00 0.63 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
ZRF: Rizozo-----	75	Very limited Slope Dusty	1.00 0.50	Somewhat limited Dusty	0.50	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 12.--Hydric soils

[This report lists only those map unit components that are rated as hydric. Dashes (---) in any column indicate that the data were not included in the database. Definitions of hydric criteria codes are included at the end of the report]

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
BwA: Bloom silty clay loam, 0 to 2 percent slopes, occasionally flooded	Bloom	85	Flood plains, terraces	Yes	2A
Co: Collegiate loam, 1 to 4 percent slopes	Collegiate	85	Flood plains	Yes	2A
CwC: Cumulic Cryaquolls, clay, 2 to 5 percent slopes	Cumulic Cryaquolls	90	Drainageways, flood plains	Yes	2B3
DH: Davtone-Histic Cryaquolls complex, 2 to 5 percent slopes	Histic Cryaquolls	40	Fans	Yes	2B1
EL: Ellicott-Las Animas complex, 0 to 2 percent slopes, occasionally flooded	Las Animas	35	Flood plains, terraces	Yes	2B3
FyB: Furia clay loam, 1 to 3 percent slopes	Furia	85	Flood plains	Yes	2B3
GmE: Aquic Dystrocryepts	Aquic Dystrocryepts	90	Cirques	Yes	2A

Table 12.--Hydric soils--continued

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
Ls: Las Animas loam, 0 to 1 percent slopes	Las Animas	85	Flood plains	Yes	2B3

## Explanation of hydric criteria codes:

1. All Histels except for Folistels, and Histosols except for Folists.
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
  - A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
  - B. are poorly drained or very poorly drained and have either:
    - 1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
    - 2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
    - 3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
3. Soils that are frequently ponded for long or very long duration during the growing season.
4. Soils that are frequently flooded for long or very long duration during the growing season.

Table 13.--Dwellings and small commercial buildings

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AA: Ayon-----	45	Somewhat limited Large stones content	0.76	Somewhat limited Large stones content	0.76	Somewhat limited Large stones content Slope	0.76 0.12
Apache-----	40	Very limited Depth to hard bedrock Large stones content	1.00 0.52	Very limited Depth to hard bedrock Large stones content	1.00 0.52	Very limited Depth to hard bedrock Large stones content Slope	1.00 0.52 0.12
Rock outcrop-----	5	Not rated		Not rated		Not rated	
AC: Ayon-----	50	Somewhat limited Slope Large stones content	0.96 0.26	Somewhat limited Slope Large stones content	0.96 0.26	Very limited Slope Large stones content	1.00 0.26
Capulin-----	45	Not limited		Not limited		Somewhat limited Slope	0.12

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AcC:							
Acantilado-----	85	Not limited		Not limited		Not limited	
AED:							
Dams, earthen dam---	100	Not rated		Not rated		Not rated	
AnB:							
Ascalon-----	85	Not limited		Not limited		Not limited	
Ap:							
Apache-----	85	Very limited		Very limited		Very limited	
		Depth to hard	1.00	Depth to hard	1.00	Depth to hard	1.00
		bedrock		bedrock		bedrock	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones	0.52	Large stones	0.52	Large stones	0.52
		content		content		content	
Rock outcrop-----	5	Not rated		Not rated		Not rated	
AR:							
Calcidic Argiustolls	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones	0.98	Large stones	0.98	Large stones	0.98
		content		content		content	
		Shrink-swell	0.50			Shrink-swell	0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	



Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AsB: Ascalon, overblown--	85	Not limited		Not limited		Not limited	
AV: Aguilar-----	45	Very limited Shrink-swell	0.99	Very limited Shrink-swell	1.00	Very limited Shrink-swell	0.99
Beckton-----	45	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
AvC: Aguilar-----	90	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
AW: Allens Park-----	45	Very limited Slope Depth to hard bedrock	1.00 0.03	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.03
Wahatoya-----	40	Very limited Slope Depth to hard bedrock	1.00 0.06	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.06
BaA: Baca-----	85	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BaB: Bacid-----	85	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.22	Very limited Shrink-swell	1.00
BaC: Baca, cool-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
BcA: Baca, cool-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50
Bk: Fallriver-----	85	Very limited Slope Large stones content	1.00 0.16	Very limited Slope Large stones content	1.00 0.16	Very limited Slope Large stones content	1.00 0.16
Rock outcrop-----	3	Not rated		Not rated		Not rated	
BnA: Bacid-----	85	Somewhat limited Shrink-swell	0.86	Somewhat limited Shrink-swell	0.22	Somewhat limited Shrink-swell	0.86
BT: Barela-----	60	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to hard bedrock	0.61	Somewhat limited Shrink-swell	0.50

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BT: Raton-----	25	Very limited Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.06	Very limited Depth to hard bedrock Large stones content Shrink-swell	1.00 1.00 0.06	Very limited Depth to hard bedrock Large stones content Slope Shrink-swell	1.00 1.00 0.50 0.06
BwA: Bloom-----	85	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.50
Bx: Boxcanyon-----	85	Very limited Shrink-swell	1.00	Somewhat limited Depth to hard bedrock	0.13	Very limited Shrink-swell	1.00
CaD: Razor-----	85	Very limited Shrink-swell Slope	1.00 0.01	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 0.61 0.01	Very limited Shrink-swell Slope	1.00 1.00
Rock outcrop-----	1	Not rated		Not rated		Not rated	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CC:							
Chacuaco-----	50	Somewhat limited Depth to hard bedrock	0.46	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to hard bedrock	0.46
Capulin-----	40	Not limited		Not limited		Not limited	
Rock outcrop-----	1	Not rated		Not rated		Not rated	
CD:							
Chacuaco-----	60	Somewhat limited Depth to hard bedrock	0.46	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to hard bedrock	0.46
Dalero-----	30	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.12
Rock outcrop-----	10	Not rated		Not rated		Not rated	
Co:							
Collegiate-----	85	Very limited Flooding Depth to saturated zone	1.00 0.39	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.39

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpA: Calemore-----	90	Somewhat limited Shrink-swell	0.06	Not limited		Somewhat limited Shrink-swell	0.06
CpB: Calemore-----	85	Somewhat limited Shrink-swell	0.06	Not limited		Somewhat limited Shrink-swell	0.06
CpC: Capulin-----	85	Not limited		Not limited		Not limited	
CpT: Capulin-----	45	Not limited		Not limited		Not limited	
Torreon-----	40	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
Ct: Breece-----	90	Somewhat limited Slope	0.16	Somewhat limited Slope	0.16	Very limited Slope	1.00
CwC: Cumulic Cryaquolls--	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DaE:							
Dalrose-----	75	Very limited Depth to hard bedrock Slope	1.00  0.96	Very limited Depth to hard bedrock Slope	1.00  0.96	Very limited Depth to hard bedrock Slope	1.00  1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
De:							
Davtone-----	85	Not limited		Not limited		Somewhat limited Slope	0.50
DFV:							
Fuera-----	35	Very limited Slope Shrink-swell	1.00  0.22	Very limited Slope Shrink-swell	1.00  0.22	Very limited Slope Shrink-swell	1.00  0.22
Dargol-----	30	Very limited Shrink-swell Slope  Depth to hard bedrock	1.00 1.00  0.54	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00  1.00	Very limited Slope Shrink-swell  Depth to hard bedrock	1.00 1.00  0.54
Vamer-----	20	Very limited Depth to hard bedrock Shrink-swell Slope	1.00  1.00 1.00	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00  1.00	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00  1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DFV: Rock outcrop-----	5	Not rated		Not rated		Not rated	
DH: Davtone-----	45	Not limited		Not limited		Not limited	
Histic Cryaquolls---	40	Very limited		Very limited		Very limited	
		Depth to	1.00	Depth to	1.00	Depth to	1.00
		saturated zone		saturated zone		saturated zone	
		Large stones	0.02	Large stones	0.02	Large stones	0.02
		content		content		content	
Dm: Demayo-----	85	Very limited		Very limited		Very limited	
		Depth to hard	1.00	Depth to hard	1.00	Slope	1.00
		bedrock		bedrock		Depth to hard	1.00
		Slope	1.00	Slope	1.00	bedrock	
		Large stones	0.45	Large stones	0.45	Large stones	0.45
		content		content		content	
Rock outcrop-----	5	Not rated		Not rated		Not rated	
Ds: Des Moines-----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones	0.99	Large stones	0.99	Large stones	0.99
		content		content		content	
		Shrink-swell	0.78	Shrink-swell	0.78	Shrink-swell	0.78

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ds: Rock outcrop-----	15	Not rated		Not rated		Not rated	
Dt: Davtone-----	85	Somewhat limited Slope	0.84	Somewhat limited Slope	0.84	Very limited Slope	1.00
Dv: Feterita-----	95	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 0.50	Very limited Ponding Depth to saturated zone Shrink-swell	1.00 1.00 1.00
Ec: Eguaje-----	50	Somewhat limited Large stones content	0.02	Somewhat limited Large stones content	0.02	Somewhat limited Slope Large stones content	0.88 0.02
Demayo-----	35	Very limited Depth to hard bedrock Large stones content	1.00 0.45	Very limited Depth to hard bedrock Large stones content	1.00 0.45	Very limited Depth to hard bedrock Slope Large stones content	1.00 0.88 0.45



Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EL:							
Ellicott-----	50	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
Las Animas-----	35	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
ES:							
Embargo-----	60	Somewhat limited Depth to hard bedrock Large stones content	0.84 0.82	Very limited Depth to hard bedrock Large stones content	1.00 0.82	Somewhat limited Depth to hard bedrock Large stones content Slope	0.84 0.82 0.12
Schwacheim-----	30	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.50
FcB:							
Wapiti-----	85	Not limited		Not limited		Not limited	
FcC:							
Fort-----	85	Not limited		Not limited		Not limited	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FcD: Fort-----	90	Somewhat limited Shrink-swell	0.06	Not limited		Somewhat limited Shrink-swell	0.06
Fp: Fishers-----	85	Very limited Slope Shrink-swell	1.00 0.22	Very limited Slope Shrink-swell	1.00 0.22	Very limited Slope Shrink-swell	1.00 0.22
FtC: Olnest-----	90	Not limited		Not limited		Not limited	
FuD: Bandarito-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00 0.12
FuE: Bandarito-----	85	Very limited Shrink-swell Slope	1.00 0.96	Very limited Shrink-swell Slope	1.00 0.96	Very limited Slope Shrink-swell	1.00 1.00
FW: Bandarito-----	45	Very limited Shrink-swell Slope	1.00 0.63	Very limited Shrink-swell Slope	1.00 0.63	Very limited Shrink-swell Slope	1.00 1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FW: Fishers-----	40	Somewhat limited Slope Shrink-swell	0.96 0.22	Somewhat limited Slope Shrink-swell	0.96 0.22	Very limited Slope Shrink-swell	1.00 0.22
FyB: Furia-----	85	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.22	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.22	Very limited Flooding Depth to saturated zone Shrink-swell	1.00 1.00 0.22
GA: Gulnare-----	50	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Allens Park-----	35	Very limited Slope Depth to hard bedrock	1.00 0.79	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.79
GC: Groomer-----	50	Very limited Shrink-swell Slope	1.00 1.00	Very limited Shrink-swell Slope	1.00 1.00	Very limited Shrink-swell Slope	1.00 1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GC: Cucharas-----	40	Very limited Shrink-swell Slope	1.00 1.00	Very limited Shrink-swell Slope Depth to soft bedrock	1.00 1.00 0.29	Very limited Slope Shrink-swell	1.00 1.00
Rock outcrop-----	5	Not rated		Not rated		Not rated	
GgB: Glenberg-----	85	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
GmE: Aquic Dystrocryepts-	90	Very limited Slope	1.00	Very limited Slope Depth to saturated zone	1.00 0.99	Very limited Slope	1.00
Gn: Angostura-----	90	Very limited Slope Large stones content	1.00 0.14	Very limited Slope Large stones content	1.00 0.14	Very limited Slope Large stones content	1.00 0.14

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GP: Pits, gravel-----	90	Very limited Slope Large stones content	1.00 0.16	Very limited Slope Large stones content	1.00 0.16	Very limited Slope Large stones content	1.00 0.16
GR: Gulnare-----	60	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Hn: Hoehne-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
HvA: Haversid-----	85	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
HyD: Humbarsprings-----	85	Not limited		Not limited		Somewhat limited Slope	0.88
K2D: Kimera-----	50	Not limited		Not limited		Somewhat limited Slope	0.50

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
K2D: Chicosa-----	35	Somewhat limited Slope	0.01	Somewhat limited Slope	0.01	Very limited Slope	1.00
KI: Kandrix-----	60	Not limited		Not limited		Somewhat limited Slope	0.50
Chicosa-----	30	Not limited		Not limited		Somewhat limited Slope	0.50
Km: Kimera-----	85	Not limited		Not limited		Not limited	
KmC: Wilid-----	50	Not limited		Not limited		Not limited	
Kimera-----	35	Not limited		Not limited		Somewhat limited Slope	0.50
KO: Kimera-----	46	Not limited		Not limited		Somewhat limited Slope	0.12
Oterodry-----	44	Not limited		Not limited		Somewhat limited Slope	0.12
Kw: Kandrix-----	85	Not limited		Not limited		Not limited	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KwC:							
Kandrix-----	50	Not limited		Not limited		Not limited	
Wiley-----	35	Not limited		Not limited		Not limited	
La:							
Lanola-----	85	Very limited		Very limited		Very limited	
		Depth to hard	1.00	Depth to hard	1.00	Depth to hard	1.00
		bedrock		bedrock		bedrock	
		Slope	0.04	Slope	0.04	Slope	1.00
Rock outcrop-----	8	Not rated		Not rated		Not rated	
Lb:							
La Brier-----	90	Somewhat limited		Not limited		Somewhat limited	
		Shrink-swell	0.50			Shrink-swell	0.50
Ld:							
Leadville-----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones	0.25	Large stones	0.25	Large stones	0.25
		content		content		content	
LG:							
Manzanst-----	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.78	Shrink-swell	0.78	Shrink-swell	0.78
						Slope	0.50

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LG: Ritoazul-----	30	Very limited Shrink-swell Slope	1.00 0.01	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 0.06 0.01	Very limited Shrink-swell Slope	1.00 1.00
LH: Leadville-----	60	Very limited Slope Large stones content	1.00 0.25	Very limited Slope Large stones content	1.00 0.25	Very limited Slope Large stones content	1.00 0.25
Howlett-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	2	Not rated		Not rated		Not rated	
Lo: La Brier-----	75	Somewhat limited Shrink-swell	0.50	Not limited		Somewhat limited Shrink-swell	0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	
LoA: Limon-----	85	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Shrink-swell	1.00 1.00	Very limited Flooding Shrink-swell	1.00 1.00



Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LR: Fallriver-----	50	Very limited Slope Large stones content	1.00 0.16	Very limited Slope Large stones content	1.00 0.16	Very limited Slope Large stones content	1.00 0.16
Rubble land-----	35	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content	1.00 1.00	Very limited Slope Large stones content	1.00 1.00
LRT: Lorencito-----	40	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 1.00 1.00	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 1.00
Rombo-----	30	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 1.00 0.15	Very limited Slope Shrink-swell	1.00 1.00
Sarcillo-----	20	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to hard bedrock	1.00 1.00 1.00	Very limited Slope Depth to hard bedrock Shrink-swell	1.00 1.00 1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LRT: Rock outcrop-----	5	Not rated		Not rated		Not rated	
Ls: Las Animas-----	85	Very limited Flooding Depth to saturated zone	1.00 0.98	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 0.98
LST: Lorencito-----	40	Very limited Shrink-swell Slope Depth to soft bedrock	1.00 1.00 0.50	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 1.00	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 1.00
Sarcillo-----	30	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 1.00 0.04	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Shrink-swell Slope	1.00 1.00 1.00
Trujillo-----	20	Not limited		Not limited		Somewhat limited Slope	0.50
Lt: Littlepine-----	85	Somewhat limited Slope	0.04	Somewhat limited Slope	0.04	Very limited Slope	1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LvD: Lorencito-----	90	Very limited Shrink-swell Slope Depth to soft bedrock	1.00 0.63 0.50	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 0.63	Very limited Depth to soft bedrock Shrink-swell Slope	1.00 1.00 1.00
LW: Littlepine-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Wahatoya-----	35	Very limited Slope Depth to hard bedrock	1.00 0.06	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.06
MaB: Mauricanyon, warm---	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
MaW: Mauricanyon, wet----	85	Very limited Flooding	1.00	Very limited Flooding Depth to saturated zone	1.00 0.95	Very limited Flooding	1.00
MD: Dumps, mine-----	100	Not rated		Not rated		Not rated	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mf:							
Moran-----	85	Very limited Large stones content Slope	1.00  1.00	Very limited Large stones content Slope	1.00  1.00	Very limited Slope Large stones content	1.00 1.00
Rock outcrop-----	5	Not rated		Not rated		Not rated	
MG:							
Tercio-----	60	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope	1.00	Very limited Slope Shrink-swell	1.00 0.50
Graneros-----	30	Very limited Slope Shrink-swell	1.00 0.50	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 0.50 0.29	Very limited Slope Shrink-swell	1.00 0.50
Rock outcrop-----	2	Not rated		Not rated		Not rated	
MGR:							
Midway, moist-----	40	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 0.50  0.16	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00  0.16	Very limited Depth to soft bedrock Shrink-swell Slope	1.00  1.00 1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MGR: Ritoazul-----	35	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to soft bedrock	1.00 0.06	Very limited Shrink-swell	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
MI: Minqwet-----	55	Not limited		Somewhat limited Depth to soft bedrock	0.46	Not limited	
Wiley-----	30	Not limited		Not limited		Not limited	
MIK: Midway-----	45	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 1.00 0.50	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 1.00 1.00	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 1.00 1.00
Chicosa-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
MnA: Manzanst-----	90	Somewhat limited Shrink-swell	0.78	Somewhat limited Shrink-swell	0.78	Somewhat limited Shrink-swell	0.78

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MnB: Manzanst-----	85	Somewhat limited Shrink-swell	0.78	Somewhat limited Shrink-swell	0.78	Somewhat limited Shrink-swell	0.78
MnW: Aquic Haplustalfs---	90	Very limited Shrink-swell Depth to saturated zone	1.00 0.16	Very limited Depth to saturated zone Shrink-swell	1.00 0.78	Very limited Shrink-swell Depth to saturated zone	1.00 0.16
MoA: Mauricanyon-----	85	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
MoB: Mauricanyon, dry----	85	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
MoR: Mlon-----	65	Very limited Shrink-swell Slope Depth to soft bedrock	1.00 1.00 0.50	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 1.00	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MP:							
Midway-----	40	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 0.50 0.16	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 0.16	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 1.00
Razor-----	35	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to soft bedrock	1.00 0.54	Very limited Shrink-swell	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
MR:							
Mirror-----	70	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.84	Very limited Slope Depth to hard bedrock Large stones content	1.00 1.00 1.00	Very limited Slope Large stones content Depth to hard bedrock	1.00 1.00 0.84
Rock outcrop-----	20	Not rated		Not rated		Not rated	
MvC:							
Manvel-----	90	Not limited		Not limited		Not limited	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MyD:							
Midway-----	85	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 0.50 0.04	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 0.04	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 1.00
Rock outcrop-----	1	Not rated		Not rated		Not rated	
MzA:							
Manzanola-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
MzB:							
Manzanola-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00
NM:							
Nopurg-----	45	Very limited Slope Large stones content	1.00 0.48	Very limited Slope Shrink-swell Large stones content	1.00 0.50 0.48	Very limited Slope Large stones content	1.00 0.48
Mitotes-----	40	Very limited Slope Shrink-swell	1.00 0.86	Very limited Slope	1.00	Very limited Slope Shrink-swell	1.00 0.86



Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OeC: Otero-----	85	Not limited		Not limited		Not limited	
OtD: Otero, dry-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
OyB: Olnest-----	90	Not limited		Not limited		Not limited	
OyC: Olnest-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
PeD: Penrose-----	85	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.12
Rock outcrop-----	5	Not rated		Not rated		Not rated	
PeF: Penrose-----	40	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeF:							
Midway-----	35	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
PM:							
Penrose-----	50	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
Minnequa-----	35	Not limited		Somewhat limited Depth to soft bedrock	0.54	Not limited	
Rock outcrop-----	5	Not rated		Not rated		Not rated	
PnD:							
Penrose, moist-----	85	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Slope	0.04	Slope	0.04	Slope	1.00
Rock outcrop-----	2	Not rated		Not rated		Not rated	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RaB: Ravine-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to soft bedrock	1.00 0.61	Very limited Shrink-swell	1.00
RaC: Ritoazul-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell Depth to soft bedrock	1.00 0.06	Very limited Shrink-swell	1.00
RB: Raton-----	65	Very limited Depth to hard bedrock Large stones content Shrink-swell Slope	1.00 1.00 0.06 0.04	Very limited Depth to hard bedrock Large stones content Shrink-swell Slope	1.00 1.00 0.06 0.04	Very limited Depth to hard bedrock Large stones content Slope Shrink-swell	1.00 1.00 1.00 0.06
Barela-----	25	Somewhat limited Shrink-swell	0.50	Somewhat limited Depth to hard bedrock	0.61	Somewhat limited Shrink-swell	0.50
Rock outcrop-----	5	Not rated		Not rated		Not rated	
Rc: Raku-----	85	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50	Somewhat limited Shrink-swell	0.50

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RCA: Raku-----	90	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell	1.00
Rd: Romound-----	85	Not limited		Somewhat limited Depth to soft bedrock	0.46	Not limited	
RF: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Rubble land-----	50	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
Rt: Raton-----	90	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Large stones content	1.00	Large stones content	1.00	Large stones content	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
		Shrink-swell	0.06	Shrink-swell	0.06	Shrink-swell	0.06
Rock outcrop-----	5	Not rated		Not rated		Not rated	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RyC: Ryegate-----	90	Somewhat limited Depth to hard bedrock	0.15	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to hard bedrock Slope	0.15 0.12
RzD: Rizozo, moist-----	75	Very limited Depth to hard bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Sc: Schwacheim-----	90	Very limited Depth to hard bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	5	Not rated		Not rated		Not rated	
ScR: Schwacheim-----	70	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SG:							
Ovmesa-----	50	Very limited Slope Depth to soft bedrock	1.00 0.50	Very limited Depth to soft bedrock Slope	1.00 1.00	Very limited Slope Depth to soft bedrock	1.00 1.00
Romound-----	35	Not limited		Somewhat limited Depth to soft bedrock	0.46	Somewhat limited Slope	0.50
ShD:							
Shingle-----	65	Somewhat limited Depth to soft bedrock Slope	0.50 0.04	Very limited Depth to soft bedrock Slope	1.00 0.04	Very limited Depth to soft bedrock Slope	1.00 1.00
Penrose-----	23	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	2	Not rated		Not rated		Not rated	
SL:							
Scandard-----	45	Very limited Slope Depth to hard bedrock	1.00 0.71	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 0.71

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SL:							
Leadville-----	30	Very limited Slope Large stones content	1.00 0.25	Very limited Slope Large stones content	1.00 0.25	Very limited Slope Large stones content	1.00 0.25
Rock outcrop-----	15	Not rated		Not rated		Not rated	
SM:							
Schamber-----	65	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
Midway-----	25	Very limited Shrink-swell Slope Depth to soft bedrock	1.00 0.96 0.50	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 0.96	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 1.00
Sn:							
Sitcan-----	90	Not limited		Not limited		Not limited	
SR:							
Saruche-----	40	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 0.94 0.50	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.94	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 0.94

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SR: Rombo-----	35	Very limited Slope Shrink-swell	1.00 1.00	Very limited Slope Shrink-swell Depth to soft bedrock	1.00 1.00 0.15	Very limited Slope Shrink-swell	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Sw: Molinaro-----	90	Not limited		Not limited		Somewhat limited Slope	0.50
TbA: Trementina, warm----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
TeE: Tecolote-----	90	Somewhat limited Large stones content Slope	0.25 0.16	Somewhat limited Large stones content Slope	0.25 0.16	Very limited Slope Large stones content	1.00 0.25
TF: Torreon, stony-----	50	Very limited Shrink-swell Slope	1.00 0.63	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 1.00



Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TF: Fuera-----	35	Very limited Slope Shrink-swell	1.00 0.22	Very limited Slope Shrink-swell	1.00 0.22	Very limited Slope Shrink-swell	1.00 0.22
TgD: Trujillo-----	90	Not limited		Not limited		Somewhat limited Slope	0.50
TgE: Trujillo-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
TL: Torreon, stony-----	55	Very limited Shrink-swell Slope	1.00 0.63	Somewhat limited Slope Shrink-swell	0.63 0.50	Very limited Slope Shrink-swell	1.00 1.00
Lorencito-----	35	Very limited Shrink-swell Slope Depth to soft bedrock	1.00 1.00 0.50	Very limited Shrink-swell Depth to soft bedrock Slope	1.00 1.00 1.00	Very limited Slope Depth to soft bedrock Shrink-swell	1.00 1.00 1.00
TmD: Trujillo-----	90	Not limited		Not limited		Somewhat limited Slope	0.50

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TnA: Trementina, cool----	90	Very limited Flooding Shrink-swell	1.00 0.06	Very limited Flooding Shrink-swell	1.00 0.06	Very limited Flooding Shrink-swell	1.00 0.06
TnB: Trementina, dry-----	85	Very limited Flooding	1.00	Very limited Flooding	1.00	Very limited Flooding	1.00
To: Torreon-----	85	Very limited Shrink-swell	1.00	Somewhat limited Shrink-swell	0.50	Very limited Shrink-swell	1.00
ToD: Torreon-----	85	Very limited Shrink-swell	1.00	Very limited Shrink-swell	1.00	Very limited Shrink-swell Slope	1.00 0.50
ToE: Torreon-----	50	Very limited Shrink-swell Slope	1.00 0.16	Somewhat limited Shrink-swell Slope	0.50 0.16	Very limited Shrink-swell Slope	1.00 1.00
Torreon, stony-----	45	Very limited Shrink-swell Slope	1.00 0.84	Somewhat limited Slope Shrink-swell	0.84 0.50	Very limited Shrink-swell Slope	1.00 1.00

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TsD: Travessilla-----	75	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.50
Rock outcrop-----	15	Not rated		Not rated		Not rated	
TsE: Torreon-----	90	Very limited Shrink-swell Slope	1.00 0.84	Somewhat limited Slope Shrink-swell	0.84 0.50	Very limited Shrink-swell Slope	1.00 1.00
TsF: Travessilla-----	50	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00	Very limited Slope Depth to hard bedrock	1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	
Us: Aridic Calciustolls-	60	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
Rock outcrop-----	5	Not rated		Not rated		Not rated	
VB: Vona, overblown----	85	Not limited		Not limited		Not limited	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VD: Dargol-----	40	Very limited Shrink-swell Depth to hard bedrock	1.00 0.54	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock Slope	1.00 0.54 0.50
Stout-----	25	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
Vamer-----	20	Very limited Depth to hard bedrock Shrink-swell	1.00 1.00	Very limited Shrink-swell Depth to hard bedrock	1.00 1.00	Very limited Depth to hard bedrock Shrink-swell	1.00 1.00
VnC: Vona-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
VoB: Vona-----	85	Not limited		Not limited		Not limited	
VoC: Vonid-----	85	Not limited		Not limited		Somewhat limited Slope	0.12

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VT:							
Villedry-----	50	Somewhat limited Depth to hard bedrock	0.01	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to hard bedrock	0.01
Travessilla-----	40	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
Rock outcrop-----	2	Not rated		Not rated		Not rated	
VtC:							
Valent-----	85	Not limited		Not limited		Somewhat limited Slope	0.12
W:							
Water-----	100	Not rated		Not rated		Not rated	
Wa:							
Wapiti-----	85	Not limited		Not limited		Not limited	
WC:							
Plughat-----	43	Not limited		Somewhat limited Depth to hard bedrock	0.61	Not limited	
Villegreen-----	41	Somewhat limited Depth to hard bedrock	0.29	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to hard bedrock	0.29

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WC: Rock outcrop-----	1	Not rated		Not rated		Not rated	
WeB: Wiley-----	85	Not limited		Not limited		Not limited	
WM: Minnequa-----	50	Not limited		Somewhat limited Depth to soft bedrock	0.54	Not limited	
Wilid-----	35	Not limited		Not limited		Not limited	
WrB: Wilid-----	90	Somewhat limited Shrink-swell	0.01	Not limited		Somewhat limited Shrink-swell	0.01
WV: Almagre-----	45	Not limited		Somewhat limited Depth to hard bedrock	0.42	Not limited	
Villedry-----	44	Somewhat limited Depth to hard bedrock	0.01	Very limited Depth to hard bedrock	1.00	Somewhat limited Depth to hard bedrock	0.01
Rock outcrop-----	1	Not rated		Not rated		Not rated	

Table 13.--Dwellings and small commercial buildings--continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WyB: Wilid-----	85	Not limited		Not limited		Not limited	
YaA: Yattle-----	90	Not limited		Not limited		Not limited	
YaC: Yattle-----	90	Not limited		Not limited		Not limited	
ZR: Rizozo-----	75	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00
		Slope	0.63	Slope	0.63	Slope	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
ZRF: Rizozo-----	75	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AA: Ayon-----	45	Somewhat limited Large stones content Frost action	0.76  0.50	Somewhat limited Large stones content Cutbanks cave	0.76  0.10	Very limited Carbonate content Large stones content Droughty Gravel content	1.00 0.99  0.84 0.07
Apache-----	40	Very limited Depth to hard bedrock Low strength Large stones content Frost action	1.00  1.00 0.52 0.50	Very limited Depth to hard bedrock Large stones content Cutbanks cave	1.00  0.52 0.10	Very limited Depth to bedrock Droughty Large stones content	1.00 1.00 0.84
AC: Ayon-----	50	Somewhat limited Slope Frost action Large stones content	0.96 0.50 0.26	Very limited Cutbanks cave Slope Large stones content	1.00 0.96 0.26	Very limited Large stones content Slope Droughty	1.00  0.96 0.54



Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AC: Capulin-----	45	Very limited Low strength Frost action	1.00 0.50	Very limited Cutbanks cave	1.00	Not limited	
AcC: Acantilado-----	85	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
AED: Dams, earthen dam---	100	Not rated		Not rated		Not rated	
AnB: Ascalon-----	85	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Ap: Apache-----	85	Very limited Depth to hard bedrock Slope Low strength Large stones content Frost action	1.00 1.00 1.00 0.52 0.50	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.52 0.10	Very limited Depth to bedrock Droughty Slope Large stones content	1.00 1.00 1.00 0.84

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AR: Calcidic Argiustolls	65	Very limited Slope Low strength Large stones content Shrink-swell	1.00 1.00 0.98 0.50	Very limited Slope Large stones content Too clayey Cutbanks cave	1.00 0.98 0.28 0.10	Very limited Slope Large stones content Droughty	1.00 1.00 0.03
Rock outcrop-----	15	Not rated		Not rated		Not rated	
AsB: Ascalon, overblown--	85	Somewhat limited Frost action Low strength	0.50 0.22	Somewhat limited Cutbanks cave	0.10	Not limited	
AV: Aguilar-----	45	Very limited Low strength Shrink-swell	1.00 0.99	Somewhat limited Cutbanks cave	0.10	Very limited Sodium content Salinity	1.00 0.01
Beckton-----	45	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Cutbanks cave Too clayey	0.10 0.03	Very limited Sodium content Salinity Droughty	1.00 1.00 0.01
AvC: Aguilar-----	90	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Too clayey Cutbanks cave	0.18 0.10	Very limited Sodium content	1.00

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AW: Allens Park-----	45	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.03	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock	1.00 0.03
Wahatoya-----	40	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Droughty Depth to bedrock	1.00 0.07 0.06
BaA: Baca-----	85	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Too clayey Cutbanks cave	0.32 0.10	Not limited	
BaB: Bacid-----	85	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Cutbanks cave	0.10	Not limited	
BaC: Baca, cool-----	85	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave Too clayey	0.10 0.01	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BCA: Baca, cool-----	85	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave Too clayey	0.10 0.01	Not limited	
Bk: Fallriver-----	85	Very limited Slope Frost action Large stones content	1.00 0.50 0.16	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.16	Very limited Slope Droughty	1.00 0.98
BnA: Bacid-----	85	Very limited Low strength Shrink-swell	1.00 0.86	Somewhat limited Cutbanks cave	0.10	Not limited	
BT: Barela-----	60	Very limited Low strength Shrink-swell	1.00 0.50	Very limited Cutbanks cave Depth to hard bedrock Too clayey	1.00 0.61 0.50	Somewhat limited Large stones content	0.26

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BT: Raton-----	25	Very limited Depth to hard bedrock Low strength Large stones content Shrink-swell	1.00 1.00 1.00 1.00 0.06	Very limited Depth to hard bedrock Large stones content Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Droughty Depth to bedrock Large stones content	1.00 1.00 1.00
BwA: Bloom-----	85	Very limited Frost action Flooding Low strength Depth to saturated zone Shrink-swell	1.00 1.00 1.00 0.99 0.50	Very limited Depth to saturated zone Flooding Cutbanks cave	1.00 0.60 0.10	Very limited Depth to saturated zone Flooding Salinity	0.99 0.60 0.50
Bx: Boxcanyon-----	85	Very limited Low strength Shrink-swell	1.00 1.00	Very limited Cutbanks cave Depth to hard bedrock Too clayey	1.00 0.13 0.02	Very limited Carbonate content	1.00

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CaD: Razor-----	85	Very limited Shrink-swell Low strength Slope	1.00 1.00 0.01	Somewhat limited Depth to soft bedrock Cutbanks cave Too clayey Slope	0.61 0.10 0.08 0.01	Very limited Too clayey Sodium content Depth to bedrock Slope	1.00 1.00 0.61 0.01
CC: Chacuaco-----	50	Very limited Low strength Frost action Depth to hard bedrock	1.00 0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 1.00	Somewhat limited Depth to bedrock	0.46
Capulin-----	40	Very limited Low strength Frost action	1.00 0.50	Very limited Cutbanks cave	1.00	Not limited	
CD: Chacuaco-----	60	Very limited Low strength Frost action Depth to hard bedrock	1.00 0.50 0.46	Very limited Depth to hard bedrock Cutbanks cave	1.00 1.00	Somewhat limited Depth to bedrock	0.46

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CD: Dalerose-----	30	Very limited Depth to hard bedrock Frost action	1.00  0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00  0.10	Very limited Droughty Depth to bedrock Gravel content	1.00 1.00 0.16
Co: Collegiate-----	85	Very limited Frost action Flooding Depth to saturated zone	1.00 1.00 0.19	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00  1.00 0.60	Somewhat limited Flooding Depth to saturated zone	0.60 0.19
CpA: Calemore-----	90	Very limited Low strength Frost action Shrink-swell	1.00 0.50 0.06	Somewhat limited Cutbanks cave	0.10	Not limited	
CpB: Calemore-----	85	Very limited Low strength Frost action Shrink-swell	1.00 0.50 0.06	Somewhat limited Cutbanks cave	0.10	Not limited	
CpC: Capulin-----	85	Very limited Low strength Frost action	1.00 0.50	Very limited Cutbanks cave	1.00	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpT: Capulin-----	45	Very limited Low strength Frost action	1.00 0.50	Very limited Cutbanks cave	1.00	Not limited	
Torreon-----	40	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Too clayey Cutbanks cave	0.50 0.10	Not limited	
Ct: Breece-----	90	Somewhat limited Frost action Slope	0.50 0.16	Somewhat limited Slope Cutbanks cave	0.16 0.10	Somewhat limited Slope	0.16
CwC: Cumulic Cryaquolls--	90	Very limited Frost action Flooding Low strength Shrink-swell Depth to saturated zone	1.00 1.00 1.00 1.00 0.94	Very limited Depth to saturated zone Flooding Too clayey Cutbanks cave	1.00 0.60 0.32 0.10	Very limited Too clayey Depth to saturated zone Flooding	1.00 0.94 0.60
DaE: Dalerose-----	75	Very limited Depth to hard bedrock Slope Frost action	1.00 0.96 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.96 0.10	Very limited Droughty Depth to bedrock Slope Gravel content	1.00 1.00 0.96 0.16



Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DaE: Rock outcrop-----	15	Not rated		Not rated		Not rated	
De: Davtone-----	85	Somewhat limited Low strength Frost action	0.78 0.50	Very limited Cutbanks cave	1.00	Not limited	
DFV: Fuera-----	35	Very limited Low strength Slope Shrink-swell	1.00 1.00 0.22	Very limited Slope Too clayey Cutbanks cave	1.00 0.50 0.10	Very limited Slope	1.00
Dargol-----	30	Very limited Low strength Shrink-swell Slope Depth to hard bedrock	1.00 1.00 1.00 0.54	Very limited Depth to hard bedrock Slope Cutbanks cave Too clayey	1.00 1.00 0.10 0.02	Very limited Slope Depth to bedrock	1.00 0.54
Vamer-----	20	Very limited Depth to hard bedrock Low strength Shrink-swell Slope	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.78

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DH: Davtone-----	45	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
Histic Cryaquolls---	40	Very limited Depth to saturated zone Frost action Large stones content	1.00 1.00 0.02	Very limited Depth to saturated zone Cutbanks cave Large stones content	1.00 0.10 0.02	Very limited Depth to saturated zone	1.00
Dm: Demayo-----	85	Very limited Depth to hard bedrock Slope Frost action Large stones content	1.00 1.00 0.50 0.45	Very limited Depth to hard bedrock Slope Large stones content Cutbanks cave	1.00 1.00 0.45 0.10	Very limited Large stones content Droughty Depth to bedrock Slope	1.00 1.00 1.00 1.00
Ds: Des Moines-----	85	Very limited Slope Low strength Large stones content Shrink-swell	1.00 1.00 0.99 0.78	Very limited Slope Large stones content Too clayey Cutbanks cave	1.00 0.99 0.12 0.10	Very limited Slope Large stones content Droughty	1.00 0.92 0.48
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Dt: Davtone-----	85	Somewhat limited Slope Frost action	0.84 0.50	Very limited Cutbanks cave Slope	1.00 0.84	Somewhat limited Slope	0.84
Dv: Feterita-----	95	Very limited Ponding Depth to saturated zone Low strength Shrink-swell	1.00 1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Cutbanks cave Too clayey	1.00 1.00 1.00 0.02	Very limited Ponding Depth to saturated zone	1.00 1.00
Ec: Eguaje-----	50	Somewhat limited Large stones content	0.02	Very limited Cutbanks cave Large stones content	1.00 0.02	Somewhat limited Large stones content Droughty	0.92 0.01
Demayo-----	35	Very limited Depth to hard bedrock Frost action Large stones content	1.00 0.50 0.45	Very limited Depth to hard bedrock Large stones content Cutbanks cave	1.00 0.45 0.10	Very limited Large stones content Droughty Depth to bedrock	1.00 1.00 1.00

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
EL: Ellicott-----	50	Very limited Flooding	1.00	Very limited Cutbanks cave Flooding	1.00 0.60	Somewhat limited Flooding	0.60
Las Animas-----	35	Very limited Frost action	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.75
		Flooding	1.00	Cutbanks cave	1.00	Flooding	0.60
		Depth to saturated zone	0.75	Flooding	0.60		
ES: Embargo-----	60	Somewhat limited Depth to hard bedrock	0.84	Very limited Depth to hard bedrock	1.00	Somewhat limited Droughty Depth to bedrock	0.90 0.84
		Large stones content	0.82	Large stones content	0.82	Large stones content	0.68
		Frost action	0.50	Cutbanks cave	0.10		
Schwacheim-----	30	Very limited Depth to hard bedrock	1.00	Very limited Depth to hard bedrock	1.00	Very limited Droughty Depth to bedrock	1.00 1.00
		Frost action	0.50			Gravel content	0.12
						Large stones content	0.11

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FcB: Wapiti-----	85	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
FcC: Fort-----	85	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
FcD: Fort-----	90	Very limited Low strength Frost action Shrink-swell	1.00 0.50 0.06	Somewhat limited Cutbanks cave	0.10	Not limited	
Fp: Fishers-----	85	Very limited Slope Shrink-swell	1.00 0.22	Very limited Slope Cutbanks cave	1.00 1.00	Very limited Slope Droughty	1.00 0.03
FtC: Olnest-----	90	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
FuD: Bandarito-----	85	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Too clayey Cutbanks cave	0.50 0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FuE: Bandarito-----	85	Very limited Low strength Shrink-swell Slope	1.00 1.00 0.96	Somewhat limited Slope Too clayey Cutbanks cave	0.96 0.50 0.10	Somewhat limited Slope	0.96
FW: Bandarito-----	45	Very limited Low strength Shrink-swell Slope	1.00 1.00 0.63	Somewhat limited Slope Too clayey Cutbanks cave	0.63 0.50 0.10	Somewhat limited Slope	0.63
Fishers-----	40	Somewhat limited Slope Shrink-swell	0.96 0.22	Very limited Cutbanks cave Slope	1.00 0.96	Somewhat limited Slope Droughty	0.96 0.03
FyB: Furia-----	85	Very limited Depth to saturated zone Frost action Flooding Low strength Shrink-swell	1.00 1.00 1.00 1.00 0.22	Very limited Depth to saturated zone Flooding Cutbanks cave Too clayey	1.00 0.60 0.10 0.04	Very limited Depth to saturated zone Flooding	1.00 0.60

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GA: Gulnare-----	50	Very limited Depth to hard bedrock Slope Frost action	1.00  1.00 0.50	Very limited Depth to hard bedrock Slope	1.00  1.00	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.78
Allens Park-----	35	Very limited Slope Depth to hard bedrock Frost action Low strength	1.00  0.79 0.50 0.22	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00  1.00 1.00	Very limited Slope Depth to bedrock Droughty	1.00 0.80 0.41
GC: Groomer-----	50	Very limited Low strength Shrink-swell Slope Frost action	1.00 1.00 1.00 0.50	Very limited Cutbanks cave Slope Too clayey	1.00 1.00 0.12	Very limited Slope	1.00
Cucharas-----	40	Very limited Low strength Shrink-swell Slope Frost action	1.00 1.00 1.00 0.50	Very limited Slope Depth to soft bedrock Too clayey Cutbanks cave	1.00 0.29  0.12 0.10	Very limited Slope Depth to bedrock	1.00 0.29

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GgB: Glenberg-----	85	Very limited Flooding Frost action	1.00 0.50	Very limited Cutbanks cave Flooding	1.00 0.60	Somewhat limited Flooding	0.60
GmE: Aquic Dystrocryepts-	90	Very limited Frost action Slope	1.00 1.00	Very limited Cutbanks cave Slope Depth to saturated zone	1.00 1.00 0.99	Very limited Slope Large stones content	1.00 0.88
Gn: Angostura-----	90	Very limited Slope Frost action Large stones content	1.00 0.50 0.14	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.14	Very limited Slope Droughty	1.00 0.04
GP: Pits, gravel-----	90	Very limited Slope Large stones content	1.00 0.16	Very limited Cutbanks cave Slope Large stones content	1.00 1.00 0.16	Not rated	



Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GR: Gulnare-----	60	Very limited Depth to hard bedrock Slope Frost action	1.00  1.00 0.50	Very limited Depth to hard bedrock Slope	1.00  1.00	Very limited Slope Depth to bedrock Droughty	1.00 1.00 0.78
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Hn: Hoehne-----	90	Very limited Flooding Frost action	1.00  0.50	Very limited Cutbanks cave Flooding	1.00  0.60	Somewhat limited Flooding	0.60
HvA: Haversid-----	85	Very limited Low strength Frost action Flooding	1.00 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
HyD: Humbarsprings-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Gravel content Droughty Large stones content	0.14 0.04 0.01

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
K2D:							
Kimera-----	50	Somewhat limited Low strength Frost action	0.78 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Chicosa-----	35	Somewhat limited Frost action Slope	0.50 0.01	Very limited Cutbanks cave Slope	1.00 0.01	Very limited Large stones content Droughty Slope	1.00 0.33 0.01
KI:							
Kandrix-----	60	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Chicosa-----	30	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Somewhat limited Droughty Large stones content Gravel content	0.71 0.32 0.10
Km:							
Kimera-----	85	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KmC:							
Wilid-----	50	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Kimera-----	35	Somewhat limited Frost action Low strength	0.50 0.22	Somewhat limited Cutbanks cave	0.10	Not limited	
KO:							
Kimera-----	46	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Oterodry-----	44	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Kw:							
Kandrix-----	85	Somewhat limited Low strength Frost action	0.78 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
KwC:							
Kandrix-----	50	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KwC: Wiley-----	35	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
La: Lanola-----	85	Very limited Depth to hard bedrock Frost action Low strength Slope	1.00 0.50 0.22 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Very limited Droughty Depth to bedrock Carbonate content Gravel content Slope	1.00 1.00 1.00 0.68 0.04
Lb: La Brier-----	90	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Not limited	
Ld: Leadville-----	85	Very limited Slope Frost action Large stones content	1.00 0.50 0.25	Very limited Slope Large stones content Cutbanks cave	1.00 0.25 0.10	Very limited Slope Droughty	1.00 0.02
LG: Manzanst-----	60	Very limited Low strength Shrink-swell	1.00 0.78	Somewhat limited Cutbanks cave Too clayey	0.10 0.04	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LG: Ritoazul-----	30	Very limited Low strength Shrink-swell Slope	1.00 1.00 0.01	Very limited Cutbanks cave Too clayey Depth to soft bedrock Slope	1.00 0.32 0.06 0.01	Very limited Too clayey Depth to bedrock Slope	1.00 0.06 0.01
LH: Leadville-----	60	Very limited Slope Frost action Large stones content	1.00 0.50 0.25	Very limited Slope Large stones content Cutbanks cave	1.00 0.25 0.10	Very limited Slope Droughty	1.00 0.02
Howlett-----	30	Very limited Slope Frost action	1.00 0.50	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Slope	1.00
Lo: La Brier-----	75	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Not limited	
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LOA: Limon-----	85	Very limited Shrink-swell Low strength Flooding	1.00 1.00 0.40	Somewhat limited Cutbanks cave Too clayey	0.10 0.08	Not limited	
LR: Fallriver-----	50	Very limited Slope Frost action Large stones content	1.00 0.50 0.16	Very limited Slope Cutbanks cave Large stones content	1.00 1.00 0.16	Very limited Slope Droughty	1.00 0.98
Rubble land-----	35	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope Dense layer	1.00 1.00 0.50	Not rated	
LRT: Lorencito-----	40	Very limited Slope Depth to soft bedrock Low strength Shrink-swell	1.00 1.00 1.00 1.00	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock Gravel content Droughty	1.00 1.00 0.95 0.86

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LRT: Rombo-----	30	Very limited Slope Low strength Shrink-swell	1.00 1.00 1.00	Very limited Slope Depth to soft bedrock Cutbanks cave	1.00 0.15 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.16 0.01
Sarcillo-----	20	Very limited Depth to hard bedrock Slope Low strength Shrink-swell	1.00 1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Slope Depth to bedrock Droughty	1.00 1.00 0.81
Ls: Las Animas-----	85	Very limited Frost action Flooding Depth to saturated zone	1.00 1.00 0.75	Very limited Depth to saturated zone Cutbanks cave Flooding	1.00 1.00 0.60	Somewhat limited Depth to saturated zone Flooding	0.75 0.60
LST: Lorencito-----	40	Very limited Depth to soft bedrock Low strength Shrink-swell Slope	1.00 1.00 1.00 1.00 1.00	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Gravel content Droughty	1.00 1.00 0.95 0.86

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LST: Sarcillo-----	30	Very limited Depth to hard bedrock Low strength Shrink-swell Slope	1.00 1.00 1.00 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Very limited Depth to bedrock Droughty Slope	1.00 0.81 0.04
Trujillo-----	20	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
Lt: Littlepine-----	85	Somewhat limited Frost action Low strength Slope	0.50 0.22 0.04	Somewhat limited Cutbanks cave Slope	0.10 0.04	Somewhat limited Slope	0.04
LvD: Lorencito-----	90	Very limited Depth to soft bedrock Low strength Shrink-swell Slope	1.00 1.00 1.00 0.63	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 0.63 0.10	Very limited Depth to bedrock Slope Droughty	1.00 0.63 0.42



Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LW: Littlepine-----	50	Very limited Slope Frost action Low strength	1.00 0.50 0.22	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
Wahatoya-----	35	Very limited Slope Frost action Depth to hard bedrock	1.00 0.50 0.06	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Droughty Depth to bedrock	1.00 0.07 0.06
MaB: Mauricanyon, warm---	90	Very limited Low strength Frost action Flooding	1.00 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
MaW: Mauricanyon, wet----	85	Very limited Low strength Frost action Flooding	1.00 0.50 0.40	Somewhat limited Depth to saturated zone Cutbanks cave	0.95 0.10	Not limited	
MD: Dumps, mine-----	100	Not rated		Not rated		Not rated	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mf: Moran-----	85	Very limited Large stones content Slope Frost action	1.00 1.00 0.50	Very limited Large stones content Slope Cutbanks cave	1.00 1.00 0.10	Very limited Large stones content Slope Droughty	1.00 1.00 0.76
MG: Tercio-----	60	Very limited Slope Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Slope Cutbanks cave Too clayey	1.00 1.00 0.50	Very limited Slope	1.00
Graneros-----	30	Very limited Slope Low strength Shrink-swell Frost action	1.00 1.00 0.50 0.50	Very limited Slope Cutbanks cave Depth to soft bedrock Too clayey	1.00 1.00 0.29 0.12	Very limited Slope Depth to bedrock	1.00 0.29
MGR: Midway, moist-----	40	Very limited Depth to soft bedrock Low strength Shrink-swell Slope	1.00 1.00 1.00 1.00 0.16	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 0.16 0.10	Very limited Depth to bedrock Too clayey Droughty Slope	1.00 1.00 0.90 0.16

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MGR: Ritoazul-----	35	Very limited Low strength Shrink-swell	1.00 1.00	Very limited Cutbanks cave Too clayey Depth to soft bedrock	1.00 0.32 0.06	Very limited Too clayey Depth to bedrock	1.00 0.06
Rock outcrop-----	15	Not rated		Not rated		Not rated	
MI: Minqwet-----	55	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Depth to soft bedrock Cutbanks cave	0.46 0.10	Somewhat limited Depth to bedrock	0.46
Wiley-----	30	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
MIK: Midway-----	45	Very limited Shrink-swell Slope Depth to soft bedrock Low strength	1.00 1.00 1.00 1.00	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock Droughty	1.00 1.00 0.46

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MIK: Chicosa-----	40	Very limited Slope Frost action	1.00 0.50	Very limited Cutbanks cave Slope	1.00 1.00	Very limited Slope Droughty Large stones content	1.00 0.38 0.03
MnA: Manzanst-----	90	Very limited Low strength Shrink-swell	1.00 0.78	Somewhat limited Cutbanks cave Too clayey	0.10 0.04	Not limited	
MnB: Manzanst-----	85	Very limited Low strength Shrink-swell	1.00 0.78	Somewhat limited Cutbanks cave Too clayey	0.10 0.04	Not limited	
MnW: Aquic Haplustalfs---	90	Very limited Low strength Shrink-swell Depth to saturated zone	1.00 1.00 0.08	Very limited Depth to saturated zone Cutbanks cave Too clayey	1.00 0.10 0.04	Somewhat limited Depth to saturated zone	0.08
MoA: Mauricanyon-----	85	Very limited Low strength Frost action Flooding	1.00 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoB: Mauricanyon, dry----	85	Very limited Low strength Frost action Flooding	1.00 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	
MoR: Mion-----	65	Very limited Depth to soft bedrock Low strength Shrink-swell Slope	1.00 1.00 1.00 1.00 1.00	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Depth to bedrock Slope Droughty	1.00 1.00 0.91
Rock outcrop-----	25	Not rated		Not rated		Not rated	
MP: Midway-----	40	Very limited Shrink-swell Depth to soft bedrock Low strength Slope	1.00 1.00 1.00 0.16	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 0.16 0.10	Very limited Depth to bedrock Droughty Slope Gravel content	1.00 0.99 0.16 0.03
Razor-----	35	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Depth to soft bedrock Too clayey Cutbanks cave	0.54 0.12 0.10	Very limited Sodium content Depth to bedrock	1.00 0.54

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MP: Rock outcrop-----	15	Not rated		Not rated		Not rated	
MR: Mirror-----	70	Very limited Large stones content Slope Depth to hard bedrock Frost action	1.00  1.00 0.84  0.50	Very limited Depth to hard bedrock Large stones content Slope Cutbanks cave	1.00  1.00  1.00 0.10	Very limited Slope Large stones content Droughty Depth to bedrock	1.00  1.00  1.00 0.84
Rock outcrop-----	20	Not rated		Not rated		Not rated	
MvC: Manvel-----	90	Very limited Low strength Frost action	1.00  0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
MyD: Midway-----	85	Very limited Shrink-swell Depth to soft bedrock Low strength Slope	1.00  0.84  1.00 0.04	Very limited Depth to soft bedrock Cutbanks cave Slope	1.00  0.10 0.04	Very limited Depth to bedrock Droughty Slope	1.00  0.92 0.04

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MzA: Manzanola-----	85	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Very limited Sodium content	1.00
MzB: Manzanola-----	85	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Cutbanks cave Too clayey	0.10 0.02	Not limited	
NM: Nopurg-----	45	Very limited Slope Frost action Large stones content	1.00 0.50 0.48	Very limited Slope Large stones content Cutbanks cave Too clayey	1.00 0.48 0.10 0.08	Very limited Slope Droughty	1.00 0.10
Mitotes-----	40	Very limited Slope Shrink-swell Frost action Low strength	1.00 0.86 0.50 0.22	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00
OeC: Otero-----	85	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OtD: Oterodry-----	85	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
OyB: Olnest-----	90	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
OyC: Olnest-----	85	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
PeD: Penrose-----	85	Very limited Depth to hard bedrock Frost action	1.00 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Very limited Depth to bedrock Carbonate content Droughty	1.00 1.00 0.90
PeF: Penrose-----	40	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Depth to bedrock Slope Carbonate content Droughty	1.00 1.00 1.00 0.90



Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeF:							
Midway-----	35	Very limited Shrink-swell Slope Depth to soft bedrock Low strength	1.00 1.00 1.00 1.00	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 1.00 0.10	Very limited Slope Depth to bedrock Too clayey Droughty	1.00 1.00 1.00 0.99
Rock outcrop-----	15	Not rated		Not rated		Not rated	
PM:							
Penrose-----	50	Very limited Depth to hard bedrock Frost action Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Very limited Depth to bedrock Carbonate content Droughty Slope	1.00 1.00 0.90 0.04
Minnequa-----	35	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Depth to soft bedrock	0.54	Somewhat limited Depth to bedrock Droughty	0.54 0.03
PnD:							
Penrose, moist-----	85	Very limited Depth to hard bedrock Frost action Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Very limited Droughty Depth to bedrock Carbonate content Slope	1.00 1.00 1.00 0.04

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RaB: Ravine-----	85	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Depth to soft bedrock Too clayey Cutbanks cave	0.61 0.32 0.10	Somewhat limited Depth to bedrock	0.61
RaC: Ritoazul-----	85	Very limited Low strength Shrink-swell	1.00 1.00	Very limited Cutbanks cave Too clayey Depth to soft bedrock	1.00 0.32 0.06	Very limited Too clayey Depth to bedrock	1.00 0.06
RB: Raton-----	65	Very limited Depth to hard bedrock Low strength Large stones content Shrink-swell Slope	1.00 1.00 1.00 0.06 0.04	Very limited Depth to hard bedrock Large stones content Cutbanks cave Slope	1.00 1.00 0.10 0.04	Very limited Droughty Depth to bedrock Large stones content Slope	1.00 1.00 1.00 0.04
Barela-----	25	Very limited Low strength Shrink-swell	1.00 0.50	Very limited Cutbanks cave Depth to hard bedrock Too clayey	1.00 0.61 0.50	Somewhat limited Large stones content	0.26

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rc: Raku-----	85	Very limited Low strength Shrink-swell	1.00 0.50	Somewhat limited Too clayey Cutbanks cave	0.18 0.10	Not limited	
RcA: Raku-----	90	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Too clayey Cutbanks cave	0.24 0.10	Not limited	
Rd: Romound-----	85	Somewhat limited Frost action	0.50	Somewhat limited Depth to soft bedrock Cutbanks cave	0.46 0.10	Somewhat limited Depth to bedrock	0.46
RF: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Rubble land-----	50	Very limited Large stones content Slope	1.00 1.00	Very limited Large stones content Slope Dense layer	1.00 1.00 0.50	Not rated	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rt: Raton-----	90	Very limited Depth to hard bedrock Low strength Large stones content Slope Shrink-swell	1.00 1.00 1.00 0.63 0.06	Very limited Depth to hard bedrock Large stones content Slope Cutbanks cave	1.00 1.00 0.63 0.10	Very limited Droughty Depth to bedrock Large stones content Slope	1.00 1.00 1.00 0.63
RyC: Ryegate-----	90	Somewhat limited Frost action Depth to hard bedrock	0.50 0.15	Very limited Depth to hard bedrock Cutbanks cave	1.00 1.00	Somewhat limited Depth to bedrock	0.16
RzD: Rizozo, moist-----	75	Very limited Depth to hard bedrock Slope Frost action	1.00 0.63 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 0.63 0.10	Very limited Droughty Depth to bedrock Slope Gravel content	1.00 1.00 0.63 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sc: Schwacheim-----	90	Very limited Depth to hard bedrock Slope Frost action	1.00  0.63 0.50	Very limited Depth to hard bedrock Slope	1.00  0.63	Very limited Droughty Depth to bedrock Slope Gravel content Large stones content	1.00 1.00 0.63 0.12 0.11
ScR: Schwacheim-----	70	Very limited Depth to hard bedrock Slope Frost action	1.00  1.00 0.50	Very limited Depth to hard bedrock Slope	1.00  1.00	Very limited Droughty Depth to bedrock Slope Gravel content Large stones content	1.00 1.00 1.00 0.12 0.11
Rock outcrop-----	20	Not rated		Not rated		Not rated	
SG: Ovmesa-----	50	Very limited Depth to soft bedrock Slope Frost action	1.00  1.00 0.50	Very limited Depth to soft bedrock Slope	1.00  1.00	Very limited Salinity Droughty Depth to bedrock Slope	1.00 1.00 1.00 1.00

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SG: Romound-----	35	Somewhat limited Frost action	0.50	Somewhat limited Depth to soft bedrock Cutbanks cave	0.46 0.10	Somewhat limited Depth to bedrock	0.46
ShD: Shingle-----	65	Very limited Depth to soft bedrock Low strength Frost action Slope	1.00 1.00 0.50 0.04	Very limited Depth to soft bedrock Cutbanks cave Slope	1.00 0.10 0.04	Very limited Depth to bedrock Droughty Slope	1.00 1.00 0.04
Penrose-----	23	Very limited Depth to hard bedrock Frost action Slope	1.00 0.50 0.04	Very limited Depth to hard bedrock Cutbanks cave Slope	1.00 0.10 0.04	Very limited Depth to bedrock Carbonate content Droughty Slope	1.00 1.00 0.90 0.04
SL: Scandard-----	45	Very limited Slope Depth to hard bedrock Frost action	1.00 0.71 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00	Very limited Slope Salinity Droughty Depth to bedrock	1.00 1.00 0.96 0.71

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SL: Leadville-----	30	Very limited Slope Frost action Large stones content	1.00 0.50 0.25	Very limited Slope Large stones content Cutbanks cave	1.00 0.25 0.10	Very limited Slope Droughty	1.00 0.02
Rock outcrop-----	15	Not rated		Not rated		Not rated	
SM: Schamber-----	65	Somewhat limited Slope	0.96	Very limited Cutbanks cave Slope	1.00 0.96	Very limited Droughty Slope Gravel content	1.00 0.96 0.88
Midway-----	25	Very limited Shrink-swell Depth to soft bedrock Low strength Slope	1.00 1.00 1.00 0.96	Very limited Depth to soft bedrock Slope Cutbanks cave	1.00 0.96 0.10	Very limited Depth to bedrock Slope Droughty	1.00 0.96 0.92
Sn: Sitcan-----	90	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SR: Saruche-----	40	Very limited Slope Depth to soft bedrock Low strength Shrink-swell	1.00 1.00 1.00 0.94	Very limited Depth to soft bedrock Slope	1.00 1.00	Very limited Slope Depth to bedrock Droughty Gravel content Large stones content	1.00 1.00 0.81 0.65 0.03
Rombo-----	35	Very limited Slope Low strength Shrink-swell	1.00 1.00 1.00	Very limited Slope Depth to soft bedrock Cutbanks cave	1.00 0.15 0.10	Very limited Slope Depth to bedrock Large stones content	1.00 0.16 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Sw: Molinaro-----	90	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
TbA: Trementina, warm----	90	Very limited Low strength Frost action Flooding	1.00 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	



Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TeE: Tecolote-----	90	Somewhat limited Frost action Large stones content Slope	0.50 0.25 0.16	Somewhat limited Large stones content Slope Cutbanks cave	0.25 0.16 0.10	Somewhat limited Droughty Slope	0.44 0.16
TF: Torreon, stony-----	50	Very limited Low strength Shrink-swell Slope	1.00 1.00 0.63	Somewhat limited Slope Too clayey Cutbanks cave	0.63 0.12 0.10	Very limited Large stones content Slope	1.00 0.63
Fuera-----	35	Very limited Slope Low strength Shrink-swell	1.00 1.00 0.22	Very limited Slope Too clayey Cutbanks cave	1.00 0.50 0.10	Very limited Slope	1.00
TgD: Trujillo-----	90	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
TgE: Trujillo-----	90	Very limited Slope Frost action	1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope	1.00

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TL: Torreon, stony-----	55	Very limited Low strength Shrink-swell Slope	1.00 1.00 0.63	Somewhat limited Slope Too clayey Cutbanks cave	0.63 0.12 0.10	Very limited Large stones content Slope	1.00 0.63
Lorencito-----	35	Very limited Depth to soft bedrock Shrink-swell Slope	1.00 1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00	Very limited Droughty Depth to bedrock Slope Gravel content	1.00 1.00 1.00 0.26
TmD: Trujillo-----	90	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
TnA: Trementina, cool----	90	Very limited Low strength Frost action Flooding Shrink-swell	1.00 0.50 0.40 0.06	Somewhat limited Cutbanks cave	0.10	Not limited	
TnB: Trementina, dry-----	85	Very limited Low strength Frost action Flooding	1.00 0.50 0.40	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
To: Torreon-----	85	Very limited Low strength Shrink-swell	1.00 1.00	Somewhat limited Cutbanks cave Too clayey	0.10 0.01	Not limited	
ToD: Torreon-----	85	Very limited Shrink-swell Low strength	1.00 1.00	Somewhat limited Too clayey Cutbanks cave	0.50 0.10	Not limited	
ToE: Torreon-----	50	Very limited Low strength Shrink-swell Slope	1.00 1.00 0.16	Somewhat limited Slope Cutbanks cave Too clayey	0.16 0.10 0.01	Somewhat limited Slope	0.16
Torreon, stony-----	45	Very limited Low strength Shrink-swell Slope	1.00 1.00 0.84	Somewhat limited Slope Too clayey Cutbanks cave	0.84 0.12 0.10	Very limited Large stones content Slope	1.00 0.84
TsD: Travessilla-----	75	Very limited Depth to hard bedrock Frost action	1.00 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Very limited Droughty Depth to bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TsE: Torreon-----	90	Very limited Low strength Shrink-swell Slope	1.00 1.00 0.84	Somewhat limited Slope Too clayey Cutbanks cave	0.84 0.12 0.10	Very limited Large stones content Slope	1.00 0.84
TsF: Travessilla-----	50	Very limited Depth to hard bedrock Slope Frost action	1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00 1.00 1.00 0.10	Very limited Slope Droughty Depth to bedrock	1.00 1.00 1.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	
Us: Aridic Calciustolls-	60	Very limited Slope Low strength Frost action	1.00 1.00 0.50	Very limited Slope Cutbanks cave	1.00 0.10	Very limited Slope Carbonate content	1.00 1.00
VB: Vona, overblown----	85	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VD: Dargol-----	40	Very limited Low strength Shrink-swell Depth to hard bedrock	1.00 1.00 0.54	Very limited Depth to hard bedrock Cutbanks cave Too clayey	1.00 0.10 0.02	Somewhat limited Depth to bedrock	0.54
Stout-----	25	Very limited Depth to hard bedrock Frost action	1.00 0.50	Very limited Depth to hard bedrock	1.00	Very limited Depth to bedrock Droughty	1.00 1.00
Vamer-----	20	Very limited Depth to hard bedrock Low strength Shrink-swell	1.00 1.00 1.00	Very limited Depth to hard bedrock	1.00	Very limited Depth to bedrock Droughty	1.00 0.78
VnC: Vona-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
VoB: Vona-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	
VoC: Vonid-----	85	Somewhat limited Frost action	0.50	Very limited Cutbanks cave	1.00	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VT: Villedry-----	50	Very limited Low strength Frost action Depth to hard bedrock	1.00 0.50 0.01	Very limited Depth to hard bedrock Cutbanks cave	1.00 1.00	Somewhat limited Depth to bedrock	0.01
Travessilla-----	40	Very limited Depth to hard bedrock Frost action	1.00 0.50	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Very limited Droughty Depth to bedrock	1.00 1.00
VtC: Valent-----	85	Not limited		Very limited Cutbanks cave	1.00	Somewhat limited Droughty	0.38
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wapiti-----	85	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
WC: Plughat-----	43	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Depth to hard bedrock Cutbanks cave	0.61 0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WC: Villegreen-----	41	Very limited Low strength Frost action Depth to hard bedrock	1.00 0.50 0.29	Very limited Depth to hard bedrock Cutbanks cave	1.00 0.10	Somewhat limited Depth to bedrock	0.29
WeB: Wiley-----	85	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
WM: Minnequa-----	50	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Depth to soft bedrock	0.54	Somewhat limited Depth to bedrock Droughty	0.54 0.03
Wilid-----	35	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
WrB: Wilid-----	90	Very limited Low strength Frost action Shrink-swell	1.00 0.50 0.01	Somewhat limited Cutbanks cave	0.10	Not limited	

Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WV: Almagre-----	45	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Depth to hard bedrock Cutbanks cave	0.42 0.10	Not limited	
Villedry-----	44	Very limited Low strength Frost action Depth to hard bedrock	1.00 0.50 0.01	Very limited Depth to hard bedrock Cutbanks cave	1.00 1.00	Somewhat limited Depth to bedrock	0.01
WyB: Wilid-----	85	Very limited Low strength Frost action	1.00 0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
YaA: Yattle-----	90	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	
YaC: Yattle-----	90	Somewhat limited Frost action	0.50	Somewhat limited Cutbanks cave	0.10	Not limited	



Table 14.--Roads and streets, shallow excavations, and lawns and landscaping--continued

Map symbol and soil name	Pct. of map unit	Local roads and streets		Shallow excavations		Lawns and landscaping	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ZR: Rizozo-----	75	Very limited Depth to hard bedrock Slope Frost action	1.00  0.63 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  0.63 0.10	Very limited Droughty Depth to bedrock Slope Gravel content	1.00 1.00 0.63 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
ZRF: Rizozo-----	75	Very limited Depth to hard bedrock Slope Frost action	1.00  1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	1.00  1.00 0.10	Very limited Slope Droughty Depth to bedrock Gravel content	1.00 1.00 1.00 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	

Table 15.--Sewage disposal

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AA: Ayon-----	45	Somewhat limited Large stones content	0.76	Very limited Seepage Large stones content Slope	1.00 0.99 0.68
Apache-----	40	Very limited Depth to bedrock Large stones content	1.00 0.52	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 0.68 0.64 0.18
AC: Ayon-----	50	Somewhat limited Slope Slow water movement Large stones content	0.96 0.50 0.26	Very limited Seepage Large stones content Slope	1.00 1.00 1.00
Capulin-----	45	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.68 0.50
AcC: Acantilado-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.32
AED: Dams, earthen dam---	100	Not rated		Not rated	
AnB: Ascalon-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
Ap: Apache-----	85	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.52	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 0.64 0.18

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AR: Calcidic Argiustolls	65	Very limited Slow water movement Slope Large stones content Depth to bedrock	1.00 1.00 0.98 0.27	Very limited Slope Large stones content	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
AsB: Ascalon, overblown--	85	Somewhat limited Slow water movement	0.50	Very limited Seepage	1.00
AV: Aguilar-----	45	Very limited Slow water movement	1.00	Not limited	
Beckton-----	45	Very limited Slow water movement	1.00	Not limited	
AvC: Aguilar-----	90	Very limited Slow water movement	1.00	Somewhat limited Slope	0.32
AW: Allens Park-----	45	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Wahatoya-----	40	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
BaA: Baca-----	85	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.50
BaB: Bacid-----	85	Very limited Slow water movement	1.00	Somewhat limited Seepage Slope	0.32 0.08
BaC: Baca, cool-----	85	Very limited Slow water movement	1.00	Somewhat limited Seepage Slope	0.50 0.32

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
BCA: Baca, cool-----	85	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.50
Bk: Fallriver-----	85	Very limited Slope Seepage, bottom layer Large stones content	1.00 1.00 0.16	Very limited Slope Large stones content Seepage	1.00 1.00 1.00
BnA: Bacid-----	85	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.50
BT: Barela-----	60	Very limited Slow water movement Depth to bedrock	1.00 0.86	Somewhat limited Depth to hard bedrock Slope	0.61 0.08
Raton-----	25	Very limited Depth to bedrock Large stones content	1.00 1.00	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 0.92
BwA: Bloom-----	85	Very limited Flooding Depth to saturated zone Slow water movement	1.00 1.00 0.82	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 0.50
Bx: Boxcanyon-----	85	Very limited Slow water movement Depth to bedrock	1.00 0.59	Somewhat limited Seepage Depth to hard bedrock	0.50 0.13
CaD: Razor-----	85	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 0.01	Very limited Depth to soft bedrock Slope	1.00 1.00
CC: Chacuaco-----	50	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 0.50 0.08

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CC: Capulin-----	40	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.08
CD: Chacuaco-----	60	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to hard bedrock Seepage Slope	1.00 0.50 0.32
Dalero-----	30	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.68
Co: Collegiate-----	85	Very limited Flooding Depth to saturated zone Seepage, bottom layer Slow water movement	1.00 1.00 1.00 0.50	Very limited Flooding Seepage Depth to saturated zone Slope	1.00 1.00 1.00 0.08
CpA: Calemore-----	90	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.50
CpB: Calemore-----	85	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.82
CpC: Capulin-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.32
CpT: Capulin-----	45	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.32
Torreon-----	40	Very limited Slow water movement	1.00	Somewhat limited Slope	0.32
Ct: Breece-----	90	Very limited Seepage, bottom layer Slope	1.00 0.16	Very limited Seepage Slope	1.00 1.00

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
CwC: Cumulic Cryaquolls--	90	Very limited Flooding Slow water movement Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Organic matter content Slope	1.00 1.00 1.00 0.32
DaE: Dalerose-----	75	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
De: Davtone-----	85	Very limited Seepage, bottom layer Slow water movement	1.00 0.50	Very limited Seepage Slope	1.00 0.92
DFV: Fuera-----	35	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope	1.00
Dargol-----	30	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Vamer-----	20	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
DH: Davtone-----	45	Very limited Seepage, bottom layer Slow water movement	1.00 0.50	Very limited Seepage Slope	1.00 0.32
Histic Cryaquolls---	40	Very limited Depth to saturated zone Seepage, bottom layer Large stones content	1.00 1.00 0.02	Very limited Seepage Depth to saturated zone Organic matter content Slope	1.00 1.00 1.00 0.32

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Dm: Demayo-----	85	Very limited Depth to bedrock Slope Large stones content	1.00 1.00 0.45	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.04
Ds: Des Moines-----	85	Very limited Slow water movement Slope Large stones content	1.00 1.00 0.99	Very limited Slope Large stones content Seepage	1.00 1.00 0.32
Rock outcrop-----	15	Not rated		Not rated	
Dt: Davtone-----	85	Very limited Seepage, bottom layer Slope Slow water movement	1.00 0.84 0.50	Very limited Seepage Slope	1.00 1.00
Dv: Feterita-----	95	Very limited Slow water movement Ponding Depth to saturated zone	1.00 1.00 1.00	Very limited Ponding Depth to saturated zone Seepage	1.00 1.00 0.53
Ec: Eguaje-----	50	Very limited Slow water movement Large stones content	1.00 0.02	Very limited Slope Seepage Large stones content	1.00 0.32 0.31
Demayo-----	35	Very limited Depth to bedrock Large stones content	1.00 0.45	Very limited Depth to hard bedrock Slope Large stones content	1.00 1.00 0.04
EL: Ellicott-----	50	Very limited Flooding	1.00	Very limited Flooding Seepage	1.00 1.00
Las Animas-----	35	Very limited Flooding Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
ES: Embargo-----	60	Very limited Slow water movement Depth to bedrock Large stones content	1.00 1.00 0.82	Very limited Depth to hard bedrock Large stones content Slope Seepage	1.00 1.00 0.68 0.50
Schwacheim-----	30	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 0.92 0.50
FcB: Wapiti-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
FcC: Fort-----	85	Somewhat limited Slow water movement	0.68	Very limited Seepage Slope	1.00 0.32
FcD: Fort-----	90	Somewhat limited Slow water movement	0.50	Very limited Seepage Slope	1.00 0.32
Fp: Fishers-----	85	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Seepage	1.00 0.50
FtC: Olnest-----	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.32
FuD: Bandarito-----	85	Very limited Slow water movement	1.00	Somewhat limited Slope	0.68
FuE: Bandarito-----	85	Very limited Slow water movement Slope	1.00 0.96	Very limited Slope	1.00
FW: Bandarito-----	45	Very limited Slow water movement Slope	1.00 0.63	Very limited Slope	1.00



Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
FW: Fishers-----	40	Very limited Slow water movement Slope	1.00  0.96	Very limited Slope Seepage	1.00  0.50
FyB: Furia-----	85	Very limited Flooding Slow water movement Depth to saturated zone	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00
GA: Gulnare-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Allens Park-----	35	Very limited Depth to bedrock Slope Slow water movement	1.00 1.00 0.99	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
GC: Groomer-----	50	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope	1.00
Cucharas-----	40	Very limited Slow water movement Depth to bedrock Slope	1.00 1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
GgB: Glenberg-----	85	Very limited Flooding	1.00	Very limited Flooding Seepage	1.00 1.00
GmE: Aquic Dystrocryepts-	90	Very limited Depth to saturated zone Seepage, bottom layer Slope	1.00 1.00 1.00	Very limited Seepage Depth to saturated zone Slope	1.00 1.00 1.00
Gn: Angostura-----	90	Very limited Slope Slow water movement Large stones content	1.00 0.50 0.14	Very limited Slope Seepage Large stones content	1.00 1.00 0.88

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
GP: Pits, gravel-----	90	Very limited Filtering capacity Seepage, bottom layer Slope Large stones content	1.00  1.00 1.00 0.16	Very limited Seepage Slope Large stones content	1.00 1.00 0.92
GR: Gulnare-----	60	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	
Hn: Hoehne-----	90	Very limited Flooding	1.00	Very limited Flooding Seepage	1.00 1.00
HvA: Haversid-----	85	Somewhat limited Slow water movement Flooding	0.50 0.40	Somewhat limited Seepage Flooding	0.53 0.40
HyD: Humbersprings-----	85	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 1.00
K2D: Kimera-----	50	Somewhat limited Slow water movement	0.50	Very limited Seepage Slope	1.00 0.92
Chicosa-----	35	Somewhat limited Slope	0.01	Very limited Seepage Slope Large stones content	1.00 1.00 0.01
KI: Kandrix-----	60	Somewhat limited Slow water movement	0.68	Somewhat limited Slope Seepage	0.92 0.32
Chicosa-----	30	Not limited		Very limited Seepage Slope	1.00 0.92
Km: Kimera-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.08

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
KmC: Wilid-----	50	Very limited Slow water movement	1.00	Somewhat limited Seepage Slope	0.50 0.32
Kimera-----	35	Somewhat limited Slow water movement	0.50	Very limited Seepage Slope	1.00 0.92
KO: Kimera-----	46	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.68 0.50
Oterodry-----	44	Not limited		Very limited Seepage Slope	1.00 0.68
Kw: Kandrix-----	85	Somewhat limited Slow water movement	0.50	Very limited Seepage Slope	1.00 0.32
KwC: Kandrix-----	50	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.32
Wiley-----	35	Very limited Slow water movement	1.00	Somewhat limited Seepage Slope	0.50 0.08
La: Lanola-----	85	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Lb: La Brier-----	90	Very limited Slow water movement	1.00	Not limited	
Ld: Leadville-----	85	Very limited Slope Slow water movement Large stones content	1.00 0.46 0.25	Very limited Seepage Slope	1.00 1.00
LG: Manzanst-----	60	Very limited Slow water movement	1.00	Somewhat limited Slope	0.92

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
LG: Ritoazul-----	30	Very limited Slow water movement Depth to bedrock Slope	1.00  1.00 0.01	Very limited Depth to soft bedrock Slope	1.00  1.00
LH: Leadville-----	60	Very limited Slope Slow water movement Large stones content	1.00 0.46  0.25	Very limited Slope Seepage	1.00 1.00
Howlett-----	30	Very limited Slope Slow water movement	1.00 0.50	Very limited Seepage Slope	1.00 1.00
Lo: La Brier-----	75	Very limited Slow water movement	1.00	Somewhat limited Slope	0.08
Rock outcrop-----	15	Not rated		Not rated	
LoA: Limon-----	85	Very limited Slow water movement Flooding	1.00  0.40	Somewhat limited Flooding	0.40
LR: Fallriver-----	50	Very limited Slope Seepage, bottom layer Large stones content	1.00 1.00  0.16	Very limited Slope Large stones content Seepage	1.00 1.00  1.00
Rubble land-----	35	Very limited Filtering capacity Slope Large stones content Seepage, bottom layer	1.00  1.00 1.00  1.00	Very limited Slope Large stones content Seepage	1.00 1.00  1.00
LRT: Lorencito-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope Seepage	1.00  1.00 0.18

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
LRT: Rombo-----	30	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Sarcillo-----	20	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Ls: Las Animas-----	85	Very limited Flooding Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00	Very limited Flooding Seepage Depth to saturated zone	1.00 1.00 1.00
LST: Lorencito-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope Seepage	1.00 1.00 0.18
Sarcillo-----	30	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00
Trujillo-----	20	Somewhat limited Slow water movement	0.46	Somewhat limited Slope Seepage	0.92 0.68
Lt: Littlepine-----	85	Somewhat limited Slow water movement Slope	0.50 0.04	Very limited Slope Seepage	1.00 0.68
LvD: Lorencito-----	90	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to soft bedrock Slope Seepage	1.00 1.00 0.18
LW: Littlepine-----	50	Very limited Slope Slow water movement	1.00 0.50	Very limited Slope Seepage	1.00 0.68

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
LW: Wahatoya-----	35	Very limited Slope Depth to bedrock Slow water movement	1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
MaB: Mauricanyon, warm---	90	Somewhat limited Slow water movement Flooding	0.50 0.40	Somewhat limited Seepage Flooding	0.50 0.40
MaW: Mauricanyon, wet---	85	Very limited Depth to saturated zone Slow water movement Flooding	1.00 0.50 0.40	Very limited Depth to saturated zone Seepage Flooding	1.00 0.50 0.40
MD: Dumps, mine-----	100	Not rated		Not rated	
Mf: Moran-----	85	Very limited Seepage, bottom layer Large stones content Slope	1.00 1.00 1.00	Very limited Seepage Slope Large stones content	1.00 1.00 1.00
MG: Tercio-----	60	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Large stones content	1.00 0.02
Graneros-----	30	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
MGR: Midway, moist-----	40	Very limited Depth to bedrock Slope	1.00 0.16	Very limited Depth to soft bedrock Slope	1.00 1.00
Ritoazul-----	35	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 0.08
Rock outcrop-----	15	Not rated		Not rated	

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
MI:					
Minqwet-----	55	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 0.08
Wiley-----	30	Very limited Slow water movement	1.00	Somewhat limited Seepage Slope	0.50 0.08
MIK:					
Midway-----	45	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Chicosa-----	40	Very limited Slope	1.00	Very limited Seepage Slope	1.00 1.00
MnA:					
Manzanst-----	90	Very limited Slow water movement	1.00	Not limited	
MnB:					
Manzanst-----	85	Very limited Slow water movement	1.00	Not limited	
MnW:					
Aquic Haplustalfs---	90	Very limited Slow water movement Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone	1.00
MoA:					
Mauricanyon-----	85	Somewhat limited Slow water movement Flooding	0.50 0.40	Somewhat limited Seepage Flooding	0.50 0.40
MoB:					
Mauricanyon, dry----	85	Somewhat limited Slow water movement Flooding	0.50 0.40	Somewhat limited Seepage Flooding	0.50 0.40
MoR:					
Mion-----	65	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Rock outcrop-----	25	Not rated		Not rated	

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
<b>MP:</b>					
Midway-----	40	Very limited Depth to bedrock Slope	1.00 0.16	Very limited Depth to soft bedrock Slope	1.00 1.00
Razor-----	35	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to soft bedrock	1.00
Rock outcrop-----	15	Not rated		Not rated	
<b>MR:</b>					
Mirror-----	70	Very limited Slope Large stones content Seepage, bottom layer Depth to bedrock	1.00 1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Large stones content Seepage	1.00 1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Not rated	
<b>MvC:</b>					
Manvel-----	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage Slope	0.50 0.08
<b>MyD:</b>					
Midway-----	85	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to soft bedrock Slope	1.00 1.00
<b>MzA:</b>					
Manzanola-----	85	Very limited Slow water movement	1.00	Not limited	
<b>MzB:</b>					
Manzanola-----	85	Very limited Slow water movement	1.00	Not limited	
<b>NM:</b>					
Nopurg-----	45	Very limited Slow water movement Slope Large stones content	1.00 1.00 0.48	Very limited Slope Seepage Large stones content	1.00 0.50 0.40
Mitotes-----	40	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope Seepage	1.00 0.50



Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
OeC: Otero-----	85	Not limited		Very limited Seepage Slope	1.00 0.32
OtD: Oterodry-----	85	Not limited		Very limited Seepage Slope	1.00 0.68
OyB: Olnest-----	90	Somewhat limited Slow water movement	0.50	Very limited Seepage	1.00
OyC: Olnest-----	85	Somewhat limited Slow water movement	0.50	Very limited Seepage Slope	1.00 0.68
PeD: Penrose-----	85	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 0.68 0.50
PeF: Penrose-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Midway-----	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
PM: Penrose-----	50	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Minnequa-----	35	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to soft bedrock Seepage Slope	1.00 0.50 0.32
PnD: Penrose, moist-----	85	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope	1.00 1.00

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
RaB: Ravine-----	85	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to soft bedrock	1.00
RaC: Ritoazul-----	85	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 0.08
RB: Raton-----	65	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.04	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00
Barela-----	25	Very limited Slow water movement Depth to bedrock	1.00 0.86	Somewhat limited Depth to hard bedrock Slope	0.61 0.32
Rc: Raku-----	85	Very limited Slow water movement	1.00	Not limited	
RcA: Raku-----	90	Very limited Slow water movement	1.00	Not limited	
Rd: Romound-----	85	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to soft bedrock Seepage Slope	1.00 0.50 0.08
RF: Rock outcrop-----	50	Not rated		Not rated	
Rubble land-----	50	Very limited Filtering capacity Slope Large stones content Seepage, bottom layer	1.00 1.00 1.00 1.00	Very limited Slope Large stones content Seepage	1.00 1.00 1.00

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Rt: Raton-----	90	Very limited Depth to bedrock Large stones content Slope	1.00 1.00 0.63	Very limited Depth to hard bedrock Large stones content Slope	1.00 1.00 1.00 1.00
RyC: Ryegate-----	90	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 0.68 0.50
RzD: Rizozo, moist-----	75	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
Sc: Schwacheim-----	90	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
ScR: Schwacheim-----	70	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Rock outcrop-----	20	Not rated		Not rated	
SG: Ovmesa-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Romound-----	35	Very limited Depth to bedrock Slow water movement	1.00 0.50	Very limited Depth to soft bedrock Slope Seepage	1.00 0.92 0.50
ShD: Shingle-----	65	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to soft bedrock Slope	1.00 1.00

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
ShD: Penrose-----	23	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
SL: Scandard-----	45	Very limited Slope Slow water movement Depth to bedrock	1.00 1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 0.50
Leadville-----	30	Very limited Slope Slow water movement Large stones content	1.00 0.46 0.25	Very limited Slope Seepage	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
SM: Schamber-----	65	Very limited Filtering capacity Slope	1.00 0.96	Very limited Seepage Slope	1.00 1.00
Midway-----	25	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to soft bedrock Slope	1.00 1.00
Sn: Sitcan-----	90	Somewhat limited Slow water movement	0.68	Somewhat limited Seepage Slope	0.50 0.08
SR: Saruche-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Rombo-----	35	Very limited Slow water movement Slope Depth to bedrock	1.00 1.00 1.00	Very limited Depth to soft bedrock Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
Sw: Molinaro-----	90	Somewhat limited Slow water movement	0.50	Somewhat limited Slope Seepage	0.92 0.50

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
TbA: Trementina, warm----	90	Somewhat limited Slow water movement Flooding	0.50 0.40	Somewhat limited Seepage Flooding	0.50 0.40
TeE: Tecolote-----	90	Somewhat limited Slow water movement Large stones content Slope	0.50 0.25 0.16	Very limited Seepage Slope Large stones content	1.00 1.00 1.00
TF: Torreon, stony-----	50	Very limited Slow water movement Slope	1.00 0.63	Very limited Slope	1.00
Fuera-----	35	Very limited Slow water movement Slope	1.00 1.00	Very limited Slope	1.00
TgD: Trujillo-----	90	Somewhat limited Slow water movement	0.46	Somewhat limited Slope Seepage	0.92 0.92
TgE: Trujillo-----	90	Very limited Slope Slow water movement	1.00 0.46	Very limited Slope Seepage	1.00 0.92
TL: Torreon, stony-----	55	Very limited Slow water movement Slope	1.00 0.63	Very limited Slope	1.00
Lorencito-----	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to soft bedrock Slope Seepage	1.00 1.00 0.18
TmD: Trujillo-----	90	Somewhat limited Slow water movement	0.46	Somewhat limited Slope Seepage	0.92 0.68
TnA: Trementina, cool----	90	Very limited Slow water movement Flooding	1.00 0.40	Somewhat limited Flooding	0.40

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
TnB: Trementina, dry-----	85	Somewhat limited Slow water movement Flooding	0.50 0.40	Somewhat limited Seepage Flooding	0.50 0.40
To: Torreon-----	85	Very limited Slow water movement	1.00	Somewhat limited Slope	0.08
ToD: Torreon-----	85	Very limited Slow water movement	1.00	Somewhat limited Slope	0.92
ToE: Torreon-----	50	Very limited Slow water movement Slope	1.00 0.16	Very limited Slope	1.00
Torreon, stony-----	45	Very limited Slow water movement Slope	1.00 0.84	Very limited Slope	1.00
TsD: Travessilla-----	75	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 0.92
Rock outcrop-----	15	Not rated		Not rated	
TsE: Torreon-----	90	Very limited Slow water movement Slope	1.00 0.84	Very limited Slope	1.00
TsF: Travessilla-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope Seepage	1.00 1.00 1.00
Rock outcrop-----	40	Not rated		Not rated	
Us: Aridic Calciustolls-	60	Very limited Slope Depth to bedrock Slow water movement	1.00 0.99 0.50	Very limited Slope Large stones content Depth to soft bedrock Seepage	1.00 1.00 0.96 0.50

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
VB: Vona, overblown-----	85	Not limited		Very limited Seepage	1.00
VD: Dargol-----	40	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 0.92
Stout-----	25	Very limited Depth to bedrock Seepage, bottom layer	1.00 1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 0.32
Vamer-----	20	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Slope	1.00 0.32
VnC: Vona-----	85	Not limited		Very limited Seepage Slope	1.00 0.68
VoB: Vona-----	85	Not limited		Very limited Seepage	1.00
VoC: Vonid-----	85	Not limited		Very limited Seepage Slope	1.00 0.68
VT: Villedry-----	50	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 0.50 0.32
Travessilla-----	40	Very limited Depth to bedrock	1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 1.00 0.32
VtC: Valent-----	85	Very limited Filtering capacity	1.00	Very limited Seepage Slope	1.00 0.68
W: Water-----	100	Not rated		Not rated	

Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Wa: Wapiti-----	85	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
WC: Plughat-----	43	Somewhat limited Depth to bedrock Slow water movement	0.86 0.68	Somewhat limited Depth to hard bedrock Seepage Slope	0.61 0.53 0.08
Villegreen-----	41	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 0.32 0.08
WeB: Wiley-----	85	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.50
WM: Minnequa-----	50	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to soft bedrock Seepage	1.00 0.50
Wilid-----	35	Very limited Slow water movement	1.00	Somewhat limited Seepage Slope	0.50 0.08
WrB: Wilid-----	90	Somewhat limited Slow water movement	0.50	Somewhat limited Seepage	0.50
WV: Almagre-----	45	Very limited Slow water movement Depth to bedrock	1.00 0.78	Somewhat limited Seepage Depth to hard bedrock Slope	0.50 0.42 0.08
Villedry-----	44	Very limited Slow water movement Depth to bedrock	1.00 1.00	Very limited Depth to hard bedrock Seepage Slope	1.00 0.50 0.08
WyB: Wilid-----	85	Very limited Slow water movement	1.00	Somewhat limited Seepage	0.50
YaA: Yattle-----	90	Not limited		Very limited Seepage	1.00



Table 15.--Sewage disposal--continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
YaC: Yattle-----	90	Not limited		Very limited Seepage Slope	1.00 0.32
ZR: Rizozo-----	75	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	
ZRF: Rizozo-----	75	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to hard bedrock Slope	1.00 1.00
Rock outcrop-----	15	Not rated		Not rated	

Table 16.--Landfills

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AA: Ayon-----	45	Somewhat limited Large stones content	0.90	Not limited		Very limited Carbonate content Large stones content Seepage Gravel content	1.00 0.90 0.50 0.05
Apache-----	40	Very limited Depth to bedrock Large stones content Too clayey	1.00 0.52 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Large stones content Too clayey	1.00 0.52 0.50
AC: Ayon-----	50	Somewhat limited Slope Large stones content	0.96 0.03	Somewhat limited Slope	0.96	Somewhat limited Gravel content Slope Seepage Large stones content	0.99 0.96 0.50 0.03
Capulin-----	45	Not limited		Not limited		Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AcC: Acantilado-----	85	Not limited		Not limited		Not limited	
AED: Dams, earthen dam---	100	Not rated		Not rated		Not rated	
AnB: Ascalon-----	85	Not limited		Not limited		Not limited	
Ap: Apache-----	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.52			Large stones content	0.52
		Too clayey	0.50			Too clayey	0.50
AR: Calcidic Argiustolls	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00			Large stones content	0.94
		Large stones content	0.94			Too clayey	0.50
		Too clayey	0.50				
Rock outcrop-----	15	Not rated		Very limited		Not rated	
				Slope	1.00		
				Depth to bedrock	1.00		

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AsB: Ascalon, overblown--	85	Not limited		Not limited		Somewhat limited Seepage	0.50
AV: Aguilar-----	45	Not limited		Not limited		Not limited	
Beckton-----	45	Not limited		Not limited		Very limited Hard to compact	1.00
AvC: Aguilar-----	90	Not limited		Not limited		Not limited	
AW: Allens Park-----	45	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00
Wahatoya-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.01
BaA: Baca-----	85	Not limited		Not limited		Not limited	
BaB: Bacid-----	85	Not limited		Not limited		Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BaC: Baca, cool-----	85	Not limited		Not limited		Very limited Hard to compact	1.00
BcA: Baca, cool-----	85	Not limited		Not limited		Very limited Hard to compact	1.00
Bk: Fallriver-----	85	Very limited Slope Seepage, bottom layer Large stones content	1.00 1.00 0.01	Very limited Slope Seepage	1.00 1.00	Very limited Slope Gravel content Seepage Large stones content	1.00 0.77 0.50 0.01
BnA: Bacid-----	85	Not limited		Not limited		Not limited	
BT: Barela-----	60	Very limited Depth to bedrock Too clayey	1.00 1.00	Somewhat limited Depth to bedrock	0.61	Very limited Too clayey Hard to compact Depth to bedrock	1.00 1.00 0.61

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BT: Raton-----	25	Very limited Depth to bedrock Too clayey Large stones	1.00 1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Hard to compact Large stones	1.00 1.00 1.00 1.00
BwA: Bloom-----	85	Very limited Flooding  Depth to saturated zone Too clayey	1.00  1.00 0.50	Very limited Flooding  Depth to saturated zone	1.00  1.00	Very limited Depth to saturated zone Too clayey	1.00  0.50
Bx: Boxcanyon-----	85	Very limited Depth to bedrock	1.00	Somewhat limited Depth to bedrock	0.14	Very limited Carbonate content Depth to bedrock	1.00 0.14
CaD: Razor-----	85	Very limited Depth to bedrock Slope	1.00 0.01	Somewhat limited Slope	0.01	Very limited Hard to compact Depth to bedrock Slope	1.00 1.00 0.01

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CC: Chacuaco-----	50	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
Capulin-----	40	Not limited		Not limited		Not limited	
CD: Chacuaco-----	60	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
Dalero-----	30	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Seepage Gravel content	1.00 0.50 0.29
Co: Collegiate-----	85	Very limited Flooding Depth to saturated zone Seepage, bottom layer	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Somewhat limited Depth to saturated zone	0.86
CpA: Calemore-----	90	Not limited		Not limited		Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpB: Calemore-----	85	Not limited		Not limited		Not limited	
CpC: Capulin-----	85	Not limited		Not limited		Not limited	
CpT: Capulin-----	45	Not limited		Not limited		Not limited	
Torreon-----	40	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
Ct: Breece-----	90	Very limited Seepage, bottom layer Slope	1.00  0.16	Very limited Seepage Slope	1.00 0.16	Somewhat limited Seepage Slope	0.50 0.16
CwC: Cumulic Cryaquolls--	90	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Too clayey Hard to compact	1.00 1.00 1.00



Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DaE: Dalerose-----	75	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope	1.00 0.96	Very limited Depth to bedrock Slope Seepage Gravel content	1.00 0.96 0.50 0.29
Rock outcrop-----	15	Not rated		Very limited Depth to bedrock Slope	1.00 0.96	Not rated	
De: Davtone-----	85	Very limited Seepage, bottom layer	1.00	Very limited Seepage	1.00	Somewhat limited Seepage	0.50
DFV: Fuera-----	35	Very limited Too clayey Slope	1.00 1.00	Very limited Slope	1.00	Very limited Too clayey Hard to compact Slope	1.00 1.00 1.00
Dargol-----	30	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Too clayey Hard to compact Depth to bedrock Slope	1.00 1.00 1.00 1.00

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DFV: Vamer-----	20	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Too clayey Hard to compact Slope	1.00 1.00 1.00 1.00
DH: Davtone-----	45	Very limited Seepage, bottom layer	1.00	Not limited		Somewhat limited Seepage	0.50
Histic Cryaquolls---	40	Very limited Depth to saturated zone Seepage, bottom layer Large stones content	1.00 1.00 1.00 0.27	Very limited Depth to saturated zone Seepage	1.00 1.00	Very limited Depth to saturated zone Seepage Large stones content	1.00 0.50 0.27
Dm: Demayo-----	85	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 0.50 0.45	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Large stones content	1.00 1.00 0.50 0.45

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ds: Des Moines-----	85	Very limited Slope Too clayey Large stones	1.00 1.00 1.00	Very limited Slope	1.00	Very limited Slope Too clayey Large stones Gravel content	1.00 1.00 1.00 0.01
Rock outcrop-----	15	Not rated		Very limited Slope Depth to bedrock	1.00 1.00	Not rated	
Dt: Davtone-----	85	Very limited Seepage, bottom layer Slope	1.00 0.84	Somewhat limited Slope	0.84	Somewhat limited Slope Seepage	0.84 0.50
Dv: Feterita-----	95	Very limited Depth to saturated zone Ponding	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Ponding Depth to saturated zone	1.00 1.00
Ec: Eguaje-----	50	Somewhat limited Too clayey Large stones content	0.50 0.06	Not limited		Somewhat limited Too clayey Gravel content Large stones content	0.50 0.49 0.06

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ec: Demayo-----	35	Very limited Depth to bedrock Too clayey Large stones content	1.00 0.50 0.45	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Large stones content	1.00 0.50 0.45
EL: Ellicott-----	50	Very limited Flooding Too sandy	1.00 1.00	Very limited Flooding	1.00	Very limited Too sandy Seepage	1.00 1.00
Las Animas-----	35	Very limited Flooding Depth to saturated zone Seepage, bottom layer Too sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 0.99
ES: Embargo-----	60	Very limited Depth to bedrock Large stones content Too clayey	1.00 0.82 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Large stones content Too clayey	1.00 0.82 0.50

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ES: Schwacheim-----	30	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Gravel content	1.00 1.00
FcB: Wapiti-----	85	Not limited		Not limited		Not limited	
FcC: Fort-----	85	Not limited		Not limited		Somewhat limited Seepage	0.21
FcD: Fort-----	90	Not limited		Not limited		Somewhat limited Seepage	0.21
Fp: Fishers-----	85	Very limited Slope Too clayey	1.00 1.00	Very limited Slope	1.00	Very limited Slope Too clayey Gravel content	1.00 1.00 0.61
FtC: Olnest-----	90	Not limited		Not limited		Not limited	
FuD: Bandarito-----	85	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FuE: Bandarito-----	85	Very limited Too clayey Slope	1.00 0.96	Somewhat limited Slope	0.96	Very limited Too clayey Hard to compact Slope	1.00 1.00 0.96
FW: Bandarito-----	45	Very limited Too clayey Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Too clayey Hard to compact Slope	1.00 1.00 0.63
Fishers-----	40	Very limited Too clayey Slope	1.00 0.96	Somewhat limited Slope	0.96	Very limited Too clayey Slope Gravel content	1.00 0.96 0.61
FyB: Furia-----	85	Very limited Flooding Depth to saturated zone Too clayey	1.00 1.00 0.50	Very limited Flooding Depth to saturated zone	1.00 1.00	Very limited Depth to saturated zone Hard to compact Too clayey	1.00 1.00 1.00 0.50
GA: Gulnare-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GA: Allens Park-----	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
GC: Groomer-----	50	Very limited Too clayey Slope	1.00 1.00	Very limited Slope	1.00	Very limited Too clayey Hard to compact Slope	1.00 1.00 1.00
Cucharas-----	40	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Too clayey Hard to compact Depth to bedrock Slope	1.00 1.00 1.00 1.00
GgB: Glenberg-----	85	Very limited Flooding Too sandy	1.00 0.50	Very limited Flooding	1.00	Somewhat limited Seepage Too sandy	0.50 0.50
GmE: Aquic Dystrocryepts-	90	Very limited Depth to saturated zone Seepage, bottom layer Slope	1.00 1.00 1.00 1.00	Very limited Depth to saturated zone Seepage Slope	1.00 1.00 1.00 1.00	Very limited Slope Seepage Depth to saturated zone Gravel content	1.00 0.50 0.47 0.24

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gn: Angostura-----	90	Very limited Slope Too clayey Large stones content	1.00 0.50 0.20	Very limited Slope	1.00	Very limited Slope Too clayey Gravel content Large stones content	1.00 0.50 0.24 0.20
GP: Pits, gravel-----	90	Not rated		Very limited Seepage Slope	1.00 1.00	Very limited Too sandy Seepage Gravel content Slope Large stones content	1.00 1.00 1.00 1.00 0.16
GR: Gulnare-----	60	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00
Rock outcrop-----	25	Not rated		Very limited Slope Depth to bedrock	1.00 1.00	Not rated	
Hn: Hoehne-----	90	Very limited Flooding	1.00	Very limited Flooding	1.00	Somewhat limited Seepage	0.50



Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HvA: Haversid-----	85	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
HyD: Humbarsprings-----	85	Somewhat limited Too sandy	0.50	Not limited		Very limited Seepage Too sandy Gravel content	1.00 0.50 0.20
K2D: Kimera-----	50	Not limited		Not limited		Not limited	
Chicosa-----	35	Very limited Too sandy Slope	1.00 0.01	Somewhat limited Slope	0.01	Very limited Too sandy Seepage Gravel content Slope	1.00 1.00 1.00 0.01
KI: Kandrix-----	60	Not limited		Not limited		Not limited	
Chicosa-----	30	Somewhat limited Too sandy	0.50	Not limited		Very limited Seepage Gravel content Too sandy	1.00 1.00 0.50
Km: Kimera-----	85	Not limited		Not limited		Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KmC:							
Wilid-----	50	Not limited		Not limited		Not limited	
Kimera-----	35	Not limited		Not limited		Not limited	
KO:							
Kimera-----	46	Not limited		Not limited		Not limited	
Oterodry-----	44	Not limited		Not limited		Somewhat limited Seepage	0.50
Kw:							
Kandrix-----	85	Not limited		Not limited		Somewhat limited Seepage	0.21
KwC:							
Kandrix-----	50	Not limited		Not limited		Not limited	
Wiley-----	35	Not limited		Not limited		Not limited	
La:							
Lanola-----	85	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Carbonate content Gravel content Slope	1.00 1.00 0.37 0.04

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Lb: La Brier-----	90	Not limited		Not limited		Very limited Too clayey	1.00
Ld: Leadville-----	85	Very limited Slope Large stones content	1.00 0.57	Very limited Seepage Slope	1.00 1.00	Very limited Slope Large stones content	1.00 0.57
LG: Manzanst-----	60	Not limited		Not limited		Not limited	
Ritoazul-----	30	Very limited Depth to bedrock Slope	1.00 0.01	Somewhat limited Slope	0.01	Very limited Hard to compact Depth to bedrock Slope	1.00 1.00 0.01
LH: Leadville-----	60	Very limited Slope Large stones content	1.00 0.57	Very limited Slope Seepage	1.00 1.00	Very limited Slope Large stones content	1.00 0.57
Howlett-----	30	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Lo: La Brier-----	75	Not limited		Not limited		Very limited Too clayey	1.00
Rock outcrop-----	15	Not rated		Very limited Depth to bedrock	1.00	Not rated	
LoA: Limon-----	85	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Very limited Hard to compact	1.00
LR: Fallriver-----	50	Very limited Slope Seepage, bottom layer Large stones content	1.00 1.00 0.01	Very limited Slope Seepage	1.00 1.00	Very limited Slope Gravel content Seepage Large stones content	1.00 0.77 0.50 0.01
Rubble land-----	35	Not rated		Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones	1.00 1.00 1.00
LRT: Lorencito-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Hard to compact	1.00 1.00 1.00

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LRT: Rombo-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Hard to compact Depth to bedrock Too clayey	1.00 1.00 1.00 0.50
Sarcillo-----	20	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey Hard to compact	1.00 1.00 1.00 1.00
Ls: Las Animas-----	85	Very limited Flooding Depth to saturated zone Seepage, bottom layer Too sandy	1.00 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone Seepage	1.00 1.00 1.00	Very limited Too sandy Seepage Depth to saturated zone	1.00 1.00 0.99
LST: Lorencito-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Hard to compact Slope	1.00 1.00 1.00

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LST: Sarcillo-----	30	Very limited Depth to bedrock Too clayey Slope	1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Hard to compact Slope	1.00 1.00 1.00 0.04
Trujillo-----	20	Not limited		Not limited		Not limited	
Lt: Littlepine-----	85	Somewhat limited Too clayey Slope	0.50 0.04	Somewhat limited Slope	0.04	Somewhat limited Too clayey Slope	0.50 0.04
LvD: Lorencito-----	90	Very limited Depth to bedrock Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Depth to bedrock Slope	1.00 0.63
LW: Littlepine-----	50	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
MaB: Wahatoya-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.01

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MaB: Mauricanyon, warm---	90	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
MaW: Mauricanyon, wet----	85	Very limited Depth to saturated zone Flooding	1.00 0.40	Very limited Depth to saturated zone Flooding	1.00 0.40	Somewhat limited Depth to saturated zone	0.11
MD: Dumps, mine-----	100	Not rated		Very limited Seepage Slope	1.00 1.00	Not rated	
Mf: Moran-----	85	Very limited Seepage, bottom layer Large stones Slope	1.00 1.00 1.00	Very limited Seepage Slope	1.00 1.00	Very limited Large stones Slope Seepage	1.00 1.00 0.50
MG: Tercio-----	60	Very limited Slope Too clayey	1.00 0.50	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MG: Graneros-----	30	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Too clayey Depth to bedrock	1.00 1.00 1.00
MGR: Midway, moist-----	40	Very limited Depth to bedrock Slope	1.00 0.16	Somewhat limited Slope	0.16	Very limited Depth to bedrock Hard to compact Slope	1.00 1.00 0.16
Ritoazul-----	35	Very limited Depth to bedrock	1.00	Not limited		Very limited Hard to compact Depth to bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Very limited Depth to bedrock Slope	1.00 0.16	Not rated	
MI: Minqwet-----	55	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
Wiley-----	30	Not limited		Not limited		Not limited	



Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MIK: Midway-----	45	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Hard to compact	1.00 1.00 1.00
Chicosa-----	40	Very limited Slope Too sandy	1.00 0.50	Very limited Slope	1.00	Very limited Seepage Gravel content Slope Too sandy	1.00 1.00 1.00 0.50
MnA: Manzanst-----	90	Not limited		Not limited		Not limited	
MnB: Manzanst-----	85	Not limited		Not limited		Not limited	
MnW: Aquic Haplustalfs---	90	Very limited Depth to saturated zone	1.00	Very limited Depth to saturated zone	1.00	Somewhat limited Depth to saturated zone	0.76
MoA: Mauricanyon-----	85	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoB: Mauricanyon, dry----	85	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
MoR: Mion-----	65	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Hard to compact Slope	1.00 1.00 1.00
Rock outcrop-----	25	Not rated		Very limited Depth to bedrock Slope	1.00 1.00	Not rated	
MP: Midway-----	40	Very limited Depth to bedrock Slope	1.00 0.16	Somewhat limited Slope	0.16	Very limited Depth to bedrock Hard to compact Slope	1.00 1.00 0.16
Razor-----	35	Very limited Depth to bedrock	1.00	Not limited		Very limited Hard to compact Depth to bedrock	1.00 1.00
Rock outcrop-----	15	Not rated		Very limited Depth to bedrock Slope	1.00 0.16	Not rated	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MR: Mirror-----	70	Very limited Slope Depth to bedrock Seepage, bottom layer Large stones	1.00 1.00 1.00 1.00	Very limited Slope Seepage Depth to bedrock	1.00 1.00 1.00	Very limited Slope Large stones Depth to bedrock Seepage	1.00 1.00 1.00 0.50
Rock outcrop-----	20	Not rated		Very limited Slope Depth to bedrock	1.00 1.00	Not rated	
MvC: Manvel-----	90	Not limited		Not limited		Not limited	
MyD: Midway-----	85	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Hard to compact Slope	1.00 1.00 0.04
MzA: Manzanola-----	85	Not limited		Not limited		Not limited	
MzB: Manzanola-----	85	Not limited		Not limited		Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NM: Nopurg-----	45	Very limited Slope Too clayey Large stones content	1.00 1.00 0.96	Very limited Slope	1.00	Very limited Slope Too clayey Large stones content	1.00 1.00 0.96
Mitotes-----	40	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope Too clayey	1.00 0.50
OeC: Otero-----	85	Not limited		Not limited		Somewhat limited Seepage	0.21
OtD: Oterodry-----	85	Not limited		Not limited		Somewhat limited Seepage	0.50
OyB: Olnest-----	90	Not limited		Not limited		Not limited	
OyC: Olnest-----	85	Not limited		Not limited		Not limited	
PeD: Penrose-----	85	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock Carbonate content	1.00 1.00

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeF: Penrose-----	40	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Carbonate content	1.00 1.00 1.00
Midway-----	35	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Hard to compact	1.00 1.00 1.00
Rock outcrop-----	15	Not rated		Very limited Depth to bedrock Slope	1.00 1.00	Not rated	
PM: Penrose-----	50	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Carbonate content Slope	1.00 1.00 0.04
Minnequa-----	35	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
PnD: Penrose, moist-----	85	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Slope	1.00 0.04

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RaB: Ravine-----	85	Very limited Depth to bedrock	1.00	Not limited		Very limited Hard to compact Depth to bedrock	1.00 1.00
RaC: Ritoazul-----	85	Very limited Depth to bedrock	1.00	Not limited		Very limited Hard to compact Depth to bedrock	1.00 1.00
RB: Raton-----	65	Very limited Depth to bedrock Too clayey Large stones Slope	1.00 1.00 1.00 0.04	Very limited Depth to bedrock Slope	1.00 0.04	Very limited Depth to bedrock Too clayey Hard to compact Large stones Slope	1.00 1.00 1.00 1.00 0.04
Barela-----	25	Very limited Depth to bedrock Too clayey	1.00 1.00	Somewhat limited Depth to bedrock	0.61	Very limited Too clayey Hard to compact Depth to bedrock	1.00 1.00 0.61
Rc: Raku-----	85	Not limited		Not limited		Not limited	
RCA: Raku-----	90	Not limited		Not limited		Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rd: Romound-----	85	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
RF: Rock outcrop-----	50	Not rated		Very limited Slope Depth to bedrock	1.00 1.00	Not rated	
Rubble land-----	50	Not rated		Very limited Slope Seepage	1.00 1.00	Very limited Slope Seepage Large stones	1.00 1.00 1.00
Rt: Raton-----	90	Very limited Depth to bedrock Too clayey Large stones Slope	1.00 1.00 1.00 0.63	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Too clayey Hard to compact Large stones Slope	1.00 1.00 1.00 1.00 0.63
RyC: Ryegate-----	90	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock	1.00

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RzD: Rizozo, moist-----	75	Very limited Depth to bedrock Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Depth to bedrock Slope Gravel content	1.00 0.63 0.06
Rock outcrop-----	15	Not rated		Very limited Depth to bedrock Slope	1.00 1.00	Not rated	
Sc: Schwacheim-----	90	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Slope	1.00 0.63	Very limited Depth to bedrock Gravel content Slope	1.00 1.00 0.63
ScR: Schwacheim-----	70	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Depth to bedrock Gravel content Slope	1.00 1.00 1.00
Rock outcrop-----	20	Not rated		Very limited Depth to bedrock Slope	1.00 1.00	Not rated	



Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SG:							
Ovmesa-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope	1.00 1.00
Romound-----	35	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
ShD:							
Shingle-----	65	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Slope	1.00 0.04
Penrose-----	23	Very limited Depth to bedrock Slope	1.00 0.04	Somewhat limited Slope	0.04	Very limited Depth to bedrock Carbonate content Slope	1.00 1.00 0.04
SL:							
Scandard-----	45	Very limited Slope Depth to bedrock Excess salt	1.00 1.00 1.00	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Depth to bedrock Gravel content	1.00 1.00 0.09
Leadville-----	30	Very limited Slope Large stones content	1.00 0.57	Very limited Slope Seepage	1.00 1.00	Very limited Slope Large stones content	1.00 0.57

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SL: Rock outcrop-----	15	Not rated		Very limited Slope Depth to bedrock	1.00 1.00	Not rated	
SM: Schamber-----	65	Somewhat limited Slope Too sandy	0.96 0.50	Somewhat limited Slope	0.96	Very limited Seepage Gravel content Slope Too sandy	1.00 1.00 0.96 0.50
Midway-----	25	Very limited Depth to bedrock Slope	1.00 0.96	Somewhat limited Slope	0.96	Very limited Depth to bedrock Hard to compact Slope	1.00 1.00 0.96
Sn: Sitcan-----	90	Not limited		Not limited		Not limited	
SR: Saruche-----	40	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Depth to bedrock Slope Too clayey	1.00 1.00 0.50

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SR: Rombo-----	35	Very limited Slope Depth to bedrock Too clayey	1.00 1.00 0.50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope Hard to compact Depth to bedrock Too clayey	1.00 1.00 1.00 0.50
Rock outcrop-----	15	Not rated		Very limited Slope Depth to bedrock	1.00 1.00	Not rated	
Sw: Molinaro-----	90	Not limited		Not limited		Not limited	
TbA: Trementina, warm----	90	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
TeE: Tecolote-----	90	Somewhat limited Slope Large stones content	0.16 0.12	Very limited Seepage Slope	1.00 0.16	Somewhat limited Gravel content Slope Large stones content	0.17 0.16 0.12

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TF: Torreon, stony-----	50	Somewhat limited Slope Too clayey	0.63 0.50	Somewhat limited Slope	0.63	Somewhat limited Slope Too clayey	0.63 0.50
Fuera-----	35	Very limited Slope Too clayey	1.00 1.00	Very limited Slope	1.00	Very limited Slope Too clayey Hard to compact	1.00 1.00 1.00
TgD: Trujillo-----	90	Not limited		Not limited		Not limited	
TgE: Trujillo-----	90	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
TL: Torreon, stony-----	55	Somewhat limited Slope Too clayey	0.63 0.50	Somewhat limited Slope	0.63	Somewhat limited Slope Too clayey	0.63 0.50
Lorencito-----	35	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Hard to compact	1.00 1.00 1.00
TmD: Trujillo-----	90	Not limited		Not limited		Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TnA: Trementina, cool----	90	Somewhat limited Too clayey Flooding	0.50 0.40	Somewhat limited Flooding	0.40	Somewhat limited Too clayey	0.50
TnB: Trementina, dry-----	85	Somewhat limited Flooding	0.40	Somewhat limited Flooding	0.40	Not limited	
To: Torreon-----	85	Somewhat limited Too clayey	0.50	Not limited		Somewhat limited Too clayey	0.50
ToD: Torreon-----	85	Very limited Too clayey	1.00	Not limited		Very limited Too clayey Hard to compact	1.00 1.00
ToE: Torreon-----	50	Somewhat limited Too clayey Slope	0.50 0.16	Somewhat limited Slope	0.16	Somewhat limited Too clayey Slope	0.50 0.16
Torreon, stony-----	45	Somewhat limited Slope Too clayey	0.84 0.50	Somewhat limited Slope	0.84	Somewhat limited Slope Too clayey	0.84 0.50

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TsD: Travessilla-----	75	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock Seepage	1.00 0.50
Rock outcrop-----	15	Not rated		Very limited Depth to bedrock	1.00	Not rated	
TsE: Torreon-----	90	Somewhat limited Slope Too clayey	0.84 0.50	Somewhat limited Slope	0.84	Somewhat limited Slope Too clayey	0.84 0.50
TsF: Travessilla-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Seepage	1.00 1.00 0.50
Rock outcrop-----	40	Not rated		Very limited Slope Depth to bedrock	1.00 1.00	Not rated	
Us: Aridic Calciustolls-	60	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope	1.00	Very limited Slope Carbonate content Depth to bedrock	1.00 1.00 0.96

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VB: Vona, overblown-----	85	Not limited		Not limited		Very limited Seepage	1.00
VD: Dargol-----	40	Very limited Depth to bedrock Too clayey	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Too clayey Hard to compact Depth to bedrock	1.00 1.00 1.00
Stout-----	25	Very limited Depth to bedrock Seepage, bottom layer	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Seepage Gravel content	1.00 0.52 0.24
Vamer-----	20	Very limited Depth to bedrock Too clayey	1.00 1.00	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey Hard to compact	1.00 1.00 1.00
VnC: Vona-----	85	Somewhat limited Too sandy	0.50	Not limited		Very limited Seepage Too sandy	1.00 0.50
VoB: Vona-----	85	Somewhat limited Too sandy	0.50	Not limited		Very limited Seepage Too sandy	1.00 0.50

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VoC: Vonid-----	85	Somewhat limited Too sandy	0.50	Not limited		Very limited Seepage Too sandy	1.00 0.50
VT: Villedry-----	50	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
Travessilla-----	40	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock Seepage	1.00 0.50
VtC: Valent-----	85	Very limited Too sandy	1.00	Not limited		Very limited Too sandy Seepage	1.00 1.00
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wapiti-----	85	Not limited		Not limited		Not limited	
WC: Plughat-----	43	Very limited Depth to bedrock Too clayey	1.00 0.50	Somewhat limited Depth to bedrock	0.61	Somewhat limited Depth to bedrock Too clayey	0.61 0.50



Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WC: Villegreen-----	41	Very limited Depth to bedrock Too clayey	1.00 0.50	Very limited Depth to bedrock	1.00	Very limited Depth to bedrock Too clayey	1.00 0.50
WeB: Wiley-----	85	Not limited		Not limited		Not limited	
WM: Minnequa-----	50	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
Wilid-----	35	Not limited		Not limited		Not limited	
WrB: Wilid-----	90	Not limited		Not limited		Not limited	
WV: Almagre-----	45	Very limited Depth to bedrock	1.00	Not limited		Somewhat limited Depth to bedrock	0.42
Villedry-----	44	Very limited Depth to bedrock	1.00	Not limited		Very limited Depth to bedrock	1.00
WyB: Wilid-----	85	Not limited		Not limited		Not limited	

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
YaA: Yattle-----	90	Not limited		Not limited		Somewhat limited Seepage	0.50
YaC: Yattle-----	90	Not limited		Not limited		Somewhat limited Seepage	0.50
ZR: Rizozo-----	75	Very limited Depth to bedrock Slope	1.00 0.63	Somewhat limited Slope	0.63	Very limited Depth to bedrock Slope Seepage Gravel content	1.00 0.63 0.21 0.06
Rock outcrop-----	15	Not rated		Very limited Depth to bedrock Slope	1.00 0.63	Not rated	
ZRF: Rizozo-----	75	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Slope	1.00	Very limited Depth to bedrock Slope Seepage Gravel content	1.00 1.00 0.21 0.06

Table 16.--Landfills--continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ZRF: Rock outcrop-----	15	Not rated		Very limited Slope Depth to bedrock	1.00 1.00	Not rated	

Table 17.--Source of gravel and sand

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
AA:					
Ayon-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Apache-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
AC:					
Ayon-----	50	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.15	Thickest layer	0.00
Capulin-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
AcC:					
Acantilado-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
AED:					
Dams, earthen dam---	100	Not rated		Not rated	
AnB:					
Ascalon-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ap:					
Apache-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
AR:					
Calcidic Argiustolls	65	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	15	Not rated		Not rated	
AsB:					
Ascalon, overblown--	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.04
AV:					
Aguilar-----	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
AV: Beckton-----	45	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Thickest layer Bottom layer	 0.00 0.00
AvC: Aguilar-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
AW: Allens Park-----	45	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Wahatoya-----	40	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
BaA: Baca-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
BaB: Bacid-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
BaC: Baca, cool-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
BcA: Baca, cool-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Bk: Fallriver-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Bottom layer Thickest layer	 0.02 0.03
BnA: Bacid-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
BT: Barela-----	60	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Raton-----	25	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
BwA: Bloom-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Bx: Boxcanyon-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CaD: Razor-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CC: Chacuaco-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Capulin-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CD: Chacuaco-----	60	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dalero-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Co: Collegiate-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.01 0.63
CpA: Calemore-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CpB: Calemore-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CpC: Capulin-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
CpT: Capulin-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
CpT: Torreon-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ct: Breece-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.03 0.04
CwC: Cumulic Cryaquolls--	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
DaE: Dalerose-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	
De: Davtone-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
DFV: Fuera-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dargol-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Vamer-----	20	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
DH: Davtone-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.02
Histic Cryaquolls---	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Dm: Demayo-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Ds: Des Moines-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Dt: Davtone-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Thickest layer Bottom layer	 0.00 0.02
Dv: Feterita-----	95	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Ec: Eguaje-----	50	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Demayo-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
EL: Ellicott-----	50	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Thickest layer Bottom layer	 0.00 0.95
Las Animas-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Thickest layer Bottom layer	 0.03 0.75
ES: Embargo-----	60	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Schwacheim-----	30	Fair Thickest layer Bottom layer	 0.00 0.57	Poor Bottom layer Thickest layer	 0.00 0.00
FcB: Wapiti-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
FcC: Fort-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
FcD: Fort-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Thickest layer Bottom layer	 0.00 0.00
Fp: Fishers-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00



Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
FtC: Olneest-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.03 0.03
FuD: Bandarito-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
FuE: Bandarito-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
FW: Bandarito-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Fishers-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
FyB: Furia-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GA: Gulnare-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Allens Park-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GC: Groomer-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Cucharas-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
GgB: Glenberg-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.08
GmE: Aquic Dystrocryepts-	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Gn: Angostura-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
GP: Pits, gravel-----	90	Fair Bottom layer Thickest layer	 0.51 0.51	Fair Bottom layer Thickest layer	 0.51 0.51
GR: Gulnare-----	60	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Rock outcrop-----	25	Not rated		Not rated	
Hn: Hoehne-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Thickest layer Bottom layer	 0.00 0.01
HvA: Haversid-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
HyD: Humbarsprings-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Bottom layer Thickest layer	 0.02 0.70
K2D: Kimera-----	50	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Chicosa-----	35	Fair Thickest layer Bottom layer	 0.00 0.12	Fair Thickest layer Bottom layer	 0.03 0.58
KI: Kandrix-----	60	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Chicosa-----	30	Fair Thickest layer Bottom layer	 0.00 0.05	Fair Thickest layer Bottom layer	 0.03 0.08
Km: Kimera-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
KmC: Willid-----	50	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
KmC: Kimera-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
KO: Kimera-----	46	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Oterodry-----	44	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Kw: Kandrix-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
KwC: Kandrix-----	50	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Wiley-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
La: Lanola-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Lb: La Brier-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Ld: Leadville-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
LG: Manzanst-----	60	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Ritoazul-----	30	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
LH: Leadville-----	60	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Howlett-----	30	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
Lo:					
La Brier-----	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	15	Not rated		Not rated	
LoA:					
Limon-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LR:					
Fallriver-----	50	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.02
		Thickest layer	0.00	Thickest layer	0.03
Rubble land-----	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
LRT:					
Lorencito-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rombo-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Sarcillo-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Ls:					
Las Animas-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.75
LST:					
Lorencito-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Sarcillo-----	30	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Trujillo-----	20	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.01
		Thickest layer	0.00	Thickest layer	0.01
Lt:					
Littlepine-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
LvD: Lorencito-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
LW: Littlepine-----	50	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Thickest layer Bottom layer	 0.00 0.04
Wahatoya-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MaB: Mauricanyon, warm---	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MaW: Mauricanyon, wet----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MD: Dumps, mine-----	100	Not rated		Not rated	
Mf: Moran-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MG: Tercio-----	60	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Graneros-----	30	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MGR: Midway, moist-----	40	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Ritoazul-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	
MI: Minqwet-----	55	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Wiley-----	30	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
MIK: Midway-----	45	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Chicosa-----	40	Fair Thickest layer Bottom layer	 0.00 0.05	Fair Thickest layer Bottom layer	 0.04 0.08
MnA: Manzanst-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MnB: Manzanst-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MnW: Aquic Haplustalfs---	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MoA: Mauricanyon-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MoB: Mauricanyon, dry----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MoR: Mion-----	65	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Rock outcrop-----	25	Not rated		Not rated	
MP: Midway-----	40	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Razor-----	35	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	
MR: Mirror-----	70	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Rock outcrop-----	20	Not rated		Not rated	

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
MvC: Manvel-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MyD: Midway-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MzA: Manzanola-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
MzB: Manzanola-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
NM: Nopurg-----	45	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
Mitotes-----	40	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Thickest layer Bottom layer	 0.00 0.04
OeC: Otero-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Bottom layer Thickest layer	 0.03 0.03
OtD: Oterodry-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
OyB: Olnest-----	90	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Bottom layer Thickest layer	 0.00 0.01
OyC: Olnest-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Fair Bottom layer Thickest layer	 0.00 0.01
PeD: Penrose-----	85	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00
PeF: Penrose-----	40	Poor Bottom layer Thickest layer	 0.00 0.00	Poor Bottom layer Thickest layer	 0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
PeF: Midway-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	
PM: Penrose-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Minnequa-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
PnD: Penrose, moist-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RaB: Ravine-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RaC: Ritoazul-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RB: Raton-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Barela-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rc: Raku-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RcA: Raku-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rd: Romound-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RF: Rock outcrop-----	50	Not rated		Not rated	



Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
RF: Rubble land-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rt: Raton-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RyC: Ryegate-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
RzD: Rizozo, moist-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	
Sc: Schwacheim-----	90	Fair Thickest layer Bottom layer	0.00 0.57	Poor Bottom layer Thickest layer	0.00 0.00
ScR: Schwacheim-----	70	Fair Thickest layer Bottom layer	0.00 0.57	Poor Bottom layer Thickest layer	0.00 0.00
Rock outcrop-----	20	Not rated		Not rated	
SG: Ovmesa-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Romound-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
ShD: Shingle-----	65	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Penrose-----	23	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
SL: Scandard-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Leadville-----	30	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
SL: Rock outcrop-----	15	Not rated		Not rated	
SM: Schamber-----	65	Fair Thickest layer Bottom layer	0.00 0.12	Fair Thickest layer Bottom layer	0.04 0.10
Midway-----	25	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Sn: Sitcan-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
SR: Saruche-----	40	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rombo-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Rock outcrop-----	15	Not rated		Not rated	
Sw: Molinaro-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TbA: Trementina, warm----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TeE: Ticolote-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.03
TF: Torreon, stony-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Fuera-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TgD: Trujillo-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.03

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
TgE: Trujillo-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.00 0.03
TL: Torreon, stony-----	55	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Lorencito-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TmD: Trujillo-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Fair Bottom layer Thickest layer	0.01 0.01
TnA: Trementina, cool----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TnB: Trementina, dry-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
To: Torreon-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
ToD: Torreon-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
ToE: Torreon-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Torreon, stony-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
TsD: Travessilla-----	75	Poor Bottom layer Thickest layer	0.00 0.00	Fair Thickest layer Bottom layer	0.00 0.03
Rock outcrop-----	15	Not rated		Not rated	
TsE: Torreon-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
TsF:					
Travessilla-----	50	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Rock outcrop-----	40	Not rated		Not rated	
Us:					
Aridic Calciustolls-	60	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
VB:					
Vona, overblown----	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.03
		Thickest layer	0.00	Thickest layer	0.08
VD:					
Dargol-----	40	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Stout-----	25	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
Vamer-----	20	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
VnC:					
Vona-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.09
VoB:					
Vona-----	85	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.09
VoC:					
Vonid-----	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.10
		Thickest layer	0.00	Thickest layer	0.10
VT:					
Villedry-----	50	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Travessilla-----	40	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.03
VtC:					
Valent-----	85	Poor		Fair	
		Bottom layer	0.00	Bottom layer	0.25
		Thickest layer	0.00	Thickest layer	0.28

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
W: Water-----	100	Not rated		Not rated	
Wa: Wapiti-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
WC: Plughat-----	43	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Villegreen-----	41	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
WeB: Wiley-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
WM: Minnequa-----	50	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Wilid-----	35	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
WrB: Wilid-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
WV: Almagre-----	45	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
Villedry-----	44	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
WyB: Wilid-----	85	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
YaA: Yattle-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00
YaC: Yattle-----	90	Poor Bottom layer Thickest layer	0.00 0.00	Poor Bottom layer Thickest layer	0.00 0.00

Table 17.--Source of gravel and sand--continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
ZR:					
Rizozo-----	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	15	Not rated		Not rated	
ZRF:					
Rizozo-----	75	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Rock outcrop-----	15	Not rated		Not rated	

Table 18.--Source of reclamation material, roadfill, and topsoil

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AA: Ayon-----	45	Poor Carbonate content Organic matter content low Droughty Cobble content Stone content	0.00 0.12 0.17 0.51 0.92	Poor Cobble content Stone content	0.00 0.99	Poor Hard to reclaim (rock fragments) Rock fragments Carbonate content	0.00 0.00 0.16
Apache-----	40	Poor Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.85 0.98	Poor Depth to bedrock Low strength	0.00 0.00	Poor Depth to bedrock Rock fragments	0.00 0.00
AC: Ayon-----	50	Fair Organic matter content low Droughty Carbonate content Stone content	0.12 0.23 0.32 0.89	Fair Cobble content Stone content	0.46 0.74	Poor Hard to reclaim (rock fragments) Rock fragments Slope Carbonate content	0.00 0.00 0.04 0.99

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AC: Capulin-----	45	Fair Organic matter content low Too clayey Carbonate content	0.12 0.82 0.97	Good		Fair Too clayey Hard to reclaim (rock fragments)	0.68 0.99
AcC: Acantilado-----	85	Fair Organic matter content low Carbonate content Water erosion	0.12 0.54 0.68	Poor Low strength	0.00	Fair Carbonate content	0.99
AED: Dams, earthen dam---	100	Not rated		Not rated		Not rated	
AnB: Ascalon-----	85	Fair Organic matter content low Water erosion	0.12 0.90	Good		Good	
Ap: Apache-----	85	Poor Droughty Depth to bedrock Cobble content Stone content	0.00 0.00 0.85 0.98	Poor Depth to bedrock Low strength	0.00 0.00	Poor Depth to bedrock Rock fragments Slope	0.00 0.00 0.00



Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AR: Calcidic Argiustolls	65	Poor Stone content Too clayey Organic matter content low Cobble content Carbonate content Droughty	0.00 0.02 0.12 0.89 0.92 0.99	Poor Slope Stone content Cobble content Shrink-swell	0.00 0.00 0.03 0.99	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too clayey	0.00 0.00 0.00 0.01
Rock outcrop-----	15	Not rated		Not rated		Not rated	
AsB: Ascalon, overblown--	85	Fair Organic matter content low	0.12	Good		Good	
AV: Aguilar-----	45	Poor Sodium content Salinity Too alkaline Organic matter content low Too clayey Water erosion	0.00 0.00 0.00 0.12 0.32 0.99	Poor Low strength Shrink-swell	0.00 0.32	Poor Sodium content Salinity Too clayey Rock fragments	0.00 0.00 0.19 0.98

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AV: Beckton-----	45	Poor Too clayey Sodium content Too alkaline Salinity Organic matter content low Water erosion	0.00 0.00 0.00 0.03 0.68 0.99	Poor Low strength Shrink-swell	0.00 0.19	Poor Too clayey Sodium content Salinity	0.00 0.00 0.00
AvC: Aguilar-----	90	Poor Too clayey Sodium content Salinity Too alkaline Organic matter content low Water erosion	0.00 0.00 0.00 0.00 0.12 0.99	Poor Low strength Shrink-swell	0.00 0.23	Poor Too clayey Sodium content Salinity	0.00 0.00 0.00
AW: Allens Park-----	45	Fair Organic matter content low Droughty Too clayey Too acid Depth to bedrock	0.12 0.86 0.92 0.95 0.97	Poor Slope Depth to bedrock	0.00 0.00	Poor Slope Too clayey Depth to bedrock	0.00 0.53 0.97

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AW: Wahatoya-----	40	Fair Droughty Too clayey Organic matter content low Depth to bedrock Too acid	 0.09 0.82 0.88  0.93 0.95	Poor Slope Depth to bedrock Cobble content	 0.00 0.00 0.81	Poor Slope Rock fragments Too clayey Depth to bedrock	 0.00 0.00 0.59 0.93
BaA: Baca-----	85	Fair Organic matter content low Too clayey Water erosion	 0.12  0.50 0.99	Poor Low strength Shrink-swell	 0.00 0.99	Fair Too clayey	 0.34
BaB: Bacid-----	85	Fair Organic matter content low Too clayey Water erosion	 0.12  0.32 0.99	Poor Low strength Shrink-swell	 0.00 0.70	Fair Too clayey	 0.23
BaC: Baca, cool-----	85	Poor Too clayey Water erosion	 0.00 0.99	Poor Low strength	 0.00	Poor Too clayey	 0.00

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BCA: Baca, cool-----	85	Poor Too clayey Water erosion	0.00 0.99	Poor Low strength	0.00	Poor Too clayey	0.00
Bk: Fallriver-----	85	Fair Organic matter content low Droughty Too acid Stone content	0.12 0.13 0.50 0.56	Poor Slope Stone content Cobble content	0.00 0.12 0.90	Poor Slope Rock fragments Hard to reclaim (rock fragments) Too acid	0.00 0.00 0.00 0.88
BnA: Bacid-----	85	Fair Too clayey Organic matter content low Water erosion	0.08 0.12 0.90	Fair Low strength Shrink-swell	0.78 0.88	Fair Too clayey	0.06
BT: Barela-----	60	Poor Too clayey Stone content Organic matter content low	0.00 0.00 0.12	Poor Low strength Depth to bedrock Stone content Shrink-swell	0.00 0.39 0.41 0.97	Poor Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.68

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BT: Raton-----	25	Poor Too clayey Droughty Depth to bedrock Stone content	0.00 0.00 0.00 0.00	Poor Depth to bedrock Low strength Stone content Shrink-swell	0.00 0.00 0.28 0.99	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.00 0.00
BwA: Bloom-----	85	Fair Organic matter content low Too clayey Water erosion	0.88 0.98 0.99	Poor Low strength Wetness depth Shrink-swell	0.00 0.00 0.90	Poor Wetness depth Too clayey	0.00 0.70
Bx: Boxcanyon-----	85	Poor Carbonate content Too clayey Water erosion	0.00 0.08 0.99	Fair Low strength Depth to bedrock Shrink-swell	0.22 0.87 0.97	Fair Too clayey Hard to reclaim (rock fragments)	0.07 0.88
CaD: Razor-----	85	Poor Too clayey Sodium content Depth to bedrock Droughty Organic matter content low	0.00 0.00 0.39 0.56 0.88	Poor Low strength Depth to bedrock Shrink-swell	0.00 0.00 0.12	Poor Too clayey Sodium content Depth to bedrock Rock fragments	0.00 0.00 0.39 0.59

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CC: Chacuaco-----	50	Fair Depth to bedrock Droughty Carbonate content	0.54 0.74 0.84	Poor Depth to bedrock Low strength	0.00 0.00	Fair Depth to bedrock	0.54
Capulin-----	40	Fair Organic matter content low Too clayey Carbonate content	0.12 0.82 0.97	Good		Fair Too clayey Hard to reclaim (rock fragments)	0.68 0.99
CD: Chacuaco-----	60	Fair Carbonate content Droughty Depth to bedrock Too clayey	0.32 0.36 0.54 0.82	Poor Depth to bedrock Low strength	0.00 0.00	Fair Depth to bedrock Too clayey	0.54 0.68
Dalero-----	30	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock	0.00	Poor Depth to bedrock Rock fragments	0.00 0.00
Co: Collegiate-----	85	Fair Droughty	0.98	Fair Wetness depth	0.53	Fair Hard to reclaim (rock fragments) Wetness depth	0.05 0.53

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpA: Calemore-----	90	Fair Organic matter content low Water erosion	0.12 0.90	Poor Low strength	0.00	Good	
CpB: Calemore-----	85	Fair Organic matter content low Carbonate content Too clayey Water erosion	0.12 0.68 0.92 0.99	Poor Low strength	0.00	Fair Too clayey	0.60
CpC: Capulin-----	85	Fair Organic matter content low Too clayey Carbonate content	0.12 0.82 0.97	Good		Fair Too clayey Hard to reclaim (rock fragments)	0.68 0.99
CpT: Capulin-----	45	Fair Organic matter content low Too clayey Carbonate content	0.12 0.82 0.97	Good		Fair Too clayey Hard to reclaim (rock fragments)	0.68 0.99

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpT: Torreon-----	40	Poor Too clayey Carbonate content	0.00 0.92	Poor Low strength Shrink-swell	0.00 0.49	Poor Too clayey Hard to reclaim (rock fragments) No rock fragments	0.00 0.01 0.99
Ct: Breece-----	90	Good		Good		Fair Slope	0.84
CwC: Cumulic Cryaquolls--	90	Poor Too clayey	0.00	Poor Low strength Wetness depth Shrink-swell	0.00 0.04 0.12	Poor Too clayey Wetness depth	0.00 0.04
DaE: Dalerose-----	75	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock	0.00	Poor Depth to bedrock Rock fragments Slope	0.00 0.00 0.04
Rock outcrop-----	15	Not rated		Not rated		Not rated	



Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
De: Davtone-----	85	Fair Organic matter content low Stone content Too acid	0.32 0.80 0.97	Good		Poor Hard to reclaim (rock fragments)	0.00
DFV: Fuera-----	35	Poor Too clayey Organic matter content low Too acid	0.00 0.12 0.95	Poor Low strength Slope Cobble content Shrink-swell	0.00 0.00 0.79 0.94	Poor Too clayey Rock fragments Slope Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.18
Dargol-----	30	Poor Too clayey Organic matter content low Depth to bedrock Droughty Too acid	0.00 0.12 0.46 0.65 0.95	Poor Low strength Depth to bedrock Slope Shrink-swell	0.00 0.00 0.00 0.35	Poor Too clayey Slope Depth to bedrock Rock fragments	0.00 0.00 0.46 0.59

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DFV: Vamer-----	20	Poor Droughty Depth to bedrock Too clayey Organic matter content low Too acid	0.00 0.00 0.00 0.12 0.95	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.00 0.12	Poor Depth to bedrock Too clayey Slope Rock fragments	0.00 0.00 0.00 0.96
DH: Davtone-----	45	Fair Organic matter content low	0.32	Good		Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.95
Histic Cryaquolls---	40	Fair Organic matter content low Too acid Cobble content Stone content	0.12 0.84 0.95 0.99	Poor Wetness depth Cobble content	0.00 0.64	Poor Wetness depth Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Dm: Demayo-----	85	Poor Droughty Depth to bedrock Stone content Too clayey Cobble content	0.00 0.00 0.60 0.92 0.98	Poor Depth to bedrock Slope	0.00 0.82	Poor Rock fragments Depth to bedrock Slope Too clayey	0.00 0.00 0.00 0.87

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ds: Des Moines-----	85	Poor		Poor		Poor	
		Stone content	0.00	Stone content	0.00	Slope	0.00
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Droughty	0.05	Slope	0.00	Rock fragments	0.00
		Organic matter content low	0.88	Cobble content	0.63	Hard to reclaim (rock fragments)	0.00
				Shrink-swell	0.99		
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Dt: Davtone-----	85	Fair		Good		Poor	
		Organic matter content low	0.32			Hard to reclaim (rock fragments)	0.00
						Slope	0.16
						Rock fragments	0.95
Dv: Feterita-----	95	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.50	Low strength	0.00	Too clayey	0.00
				Shrink-swell	0.49		

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ec: Eguaje-----	50	Poor Carbonate content Organic matter content low Too clayey Cobble content	0.00 0.12 0.92 0.97	Fair Cobble content	0.43	Poor Hard to reclaim (rock fragments) Rock fragments Too clayey Carbonate content	0.00 0.00 0.53 0.87
Demayo-----	35	Poor Droughty Depth to bedrock Stone content Too clayey Cobble content	0.00 0.00 0.60 0.92 0.98	Poor Depth to bedrock	0.00	Poor Rock fragments Depth to bedrock Too clayey	0.00 0.00 0.87
EL: Ellicott-----	50	Fair Organic matter content low Droughty	0.12 0.98	Good		Poor Hard to reclaim (rock fragments)	0.00
Las Animas-----	35	Fair Organic matter content low Water erosion Droughty	0.12 0.90 0.99	Fair Wetness depth	0.14	Fair Wetness depth Salinity	0.14 0.88

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ES: Embargo-----	60	Poor Droughty Depth to bedrock Cobble content	0.00 0.16 0.18	Poor Depth to bedrock Cobble content	0.00 0.31	Poor Rock fragments Depth to bedrock	0.00 0.16
Schwacheim-----	30	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock	0.00	Poor Depth to bedrock Rock fragments	0.00 0.00
FCB: Wapiti-----	85	Fair Organic matter content low Too clayey Carbonate content Water erosion	0.12 0.92 0.95 0.99	Fair Low strength	0.22	Fair Too clayey	0.53
FcC: Fort-----	85	Fair Organic matter content low Too clayey	0.12 0.92	Fair Low strength	0.78	Fair Too clayey	0.53
FcD: Fort-----	90	Fair Organic matter content low Water erosion	0.12 0.99	Good		Good	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Fp: Fishers-----	85	Poor Too clayey Organic matter content low Too acid Droughty	0.00 0.12 0.95 0.99	Poor Slope Cobble content Shrink-swell	0.00 0.92 0.99	Poor Slope Hard to reclaim (rock fragments) Rock fragments Too clayey	0.00 0.00 0.00 0.00 0.00
FtC: Olnest-----	90	Fair Organic matter content low	0.50	Good		Good	
FuD: Bandarito-----	85	Poor Too clayey	0.00	Poor Low strength Shrink-swell	0.00 0.18	Poor Too clayey	0.00
FuE: Bandarito-----	85	Poor Too clayey	0.00	Poor Low strength Shrink-swell	0.00 0.18	Poor Too clayey Slope	0.00 0.04
FW: Bandarito-----	45	Poor Too clayey	0.00	Poor Low strength Shrink-swell	0.00 0.18	Poor Too clayey Slope	0.00 0.37

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FW: Fishers-----	40	Poor Too clayey Organic matter content low Too acid Droughty	0.00 0.12 0.95 0.99	Fair Cobble content Shrink-swell	0.92 0.99	Poor Hard to reclaim (rock fragments) Rock fragments Too clayey Slope	0.00 0.00 0.00 0.04
FyB: Furia-----	85	Fair Too clayey	0.32	Poor Wetness depth Low strength Shrink-swell	0.00 0.00 0.94	Poor Wetness depth Too clayey	0.00 0.32
GA: Gulnare-----	50	Poor Depth to bedrock Droughty Organic matter content low Too acid	0.00 0.00 0.88 0.95	Poor Depth to bedrock Slope	0.00 0.82	Poor Depth to bedrock Slope Rock fragments	0.00 0.00 0.08
Allens Park-----	35	Poor Droughty Organic matter content low Depth to bedrock Too clayey	0.00 0.12 0.21 0.82	Poor Depth to bedrock Low strength	0.00 0.78	Poor Slope Depth to bedrock Too clayey Too clayey	0.00 0.21 0.48 0.48

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GC: Groomer-----	50	Poor Too clayey Organic matter content low	0.00 0.50	Poor Low strength Shrink-swell	0.00 0.41	Poor Too clayey Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.32 0.97
Cucharas-----	40	Poor Too clayey Depth to bedrock Droughty	0.00 0.71 0.88	Poor Low strength Depth to bedrock Slope Shrink-swell	0.00 0.00 0.08 0.12	Poor Too clayey Slope Depth to bedrock	0.00 0.00 0.71
GgB: Glenberg-----	85	Fair Organic matter content low Too sandy	0.50 0.78	Good		Fair Too sandy Rock fragments	0.78 0.99
GmE: Aquic Dystrocryepts-	90	Fair Organic matter content low Too acid Droughty	0.12 0.50 0.95	Fair Slope Wetness depth	0.82 0.89	Poor Hard to reclaim (rock fragments) Rock fragments Slope Too acid Wetness depth	0.00 0.00 0.00 0.88 0.89



Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gn: Angostura-----	90	Fair Organic matter content low Stone content Too acid	0.12  0.68 0.84	Poor Slope Cobble content Stone content	0.00 0.61 0.84	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00
GP: Pits, gravel-----	90	Not rated		Poor Stone content Cobble content	0.00 0.98	Not rated	
GR: Gulnare-----	60	Poor Depth to bedrock Droughty Organic matter content low Too acid	0.00 0.00 0.88 0.95	Poor Depth to bedrock Slope	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.00 0.08
Rock outcrop-----	25	Not rated		Not rated		Not rated	
Hn: Hoehne-----	90	Fair Organic matter content low	0.50	Good		Good	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HvA: Haversid-----	85	Fair Organic matter content low Water erosion	0.88 0.90	Poor Low strength	0.00	Good	
HyD: Humbarsprings-----	85	Poor Too sandy Carbonate content Organic matter content low Droughty	0.00 0.08 0.12 0.91	Good		Poor Too sandy Rock fragments Hard to reclaim (rock fragments) Carbonate content	0.00 0.12 0.54 0.99
K2D: Kimera-----	50	Fair Organic matter content low Carbonate content Water erosion	0.88 0.92 0.99	Fair Low strength	0.22	Fair Rock fragments No carbonate limitation	0.99 0.99
Chicosa-----	35	Fair Organic matter content low Droughty Carbonate content	0.12 0.20 0.46	Good		Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KI: Kandrix-----	60	Fair Organic matter content low Carbonate content Water erosion	0.12 0.32 0.99	Fair Low strength	0.78	Fair Rock fragments Carbonate content	0.68 0.96
Chicosa-----	30	Fair Carbonate content Droughty Organic matter content low	0.08 0.11 0.12	Fair Cobble content	0.95	Poor Hard to reclaim (rock fragments) Rock fragments	0.00 0.00
Km: Kimera-----	85	Fair Organic matter content low Carbonate content Water erosion	0.88 0.95 0.99	Poor Low strength	0.00	Good	
KmC: Wilid-----	50	Fair Organic matter content low Too clayey Water erosion	0.50 0.68 0.99	Poor Low strength	0.00	Fair Too clayey	0.44

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KmC: Kimera-----	35	Fair Organic matter content low Carbonate content Water erosion	0.50 0.97 0.99	Fair Low strength	0.22	Fair Rock fragments	0.59
KO: Kimera-----	46	Fair Organic matter content low Carbonate content	0.12 0.92	Fair Low strength	0.78	Good	
Oterodry-----	44	Fair Organic matter content low	0.50	Good		Good	
Kw: Kandrix-----	85	Fair Organic matter content low Carbonate content Water erosion	0.12 0.92 0.99	Good		Good	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KwC: Kandrix-----	50	Poor Too alkaline Organic matter content low Carbonate content Water erosion	0.00 0.88 0.95 0.99	Poor Low strength	0.00	Good	
Wiley-----	35	Fair Organic matter content low Carbonate content Water erosion Too clayey	0.12 0.68 0.90 0.98	Poor Low strength	0.00	Fair Too clayey	0.70
La: Lanola-----	85	Poor Droughty Carbonate content Depth to bedrock	0.00 0.00 0.00	Poor Depth to bedrock Low strength	0.00 0.78	Poor Depth to bedrock Carbonate content Rock fragments Slope	0.00 0.00 0.00 0.96
Lb: La Brier-----	90	Poor Too clayey Organic matter content low Water erosion	0.00 0.12 0.99	Poor Low strength Shrink-swell	0.00 0.97	Poor Too clayey	0.00

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ld: Leadville-----	85	Fair		Fair		Poor	
		Organic matter content low	0.12	Slope	0.08	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.63	Cobble content	0.10	Rock fragments	0.00
		Too acid	0.84			Slope	0.00
		Droughty	0.98				
LG: Manzanst-----	60	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.64		
Ritoazul-----	30	Poor		Poor		Poor	
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Carbonate content	0.68	Depth to bedrock	0.00	Depth to bedrock	0.93
		Organic matter content low	0.88	Shrink-swell	0.29	Carbonate content	0.97
		Depth to bedrock	0.93				
LH: Leadville-----	60	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Cobble content	0.63	Cobble content	0.10	Hard to reclaim (rock fragments)	0.00
		Too acid	0.84			Rock fragments	0.00
		Droughty	0.98				

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LH: Howlett-----	30	Fair Organic matter content low Too acid	0.12 0.84	Fair Slope	0.08	Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.00
Lo: La Brier-----	75	Poor Too clayey Organic matter content low Water erosion	0.00 0.12 0.99	Poor Low strength Shrink-swell	0.00 0.97	Poor Too clayey	0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
LoA: Limon-----	85	Poor Too clayey Organic matter content low Sodium content	0.00 0.12 0.97	Poor Low strength Shrink-swell	0.00 0.12	Poor Too clayey Salinity Sodium content	0.00 0.50 0.78

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LR: Fallriver-----	50	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
		Droughty	0.13	Stone content	0.12	Rock fragments	0.00
		Too acid	0.50	Cobble content	0.90	Hard to reclaim (rock fragments)	0.00
		Stone content	0.56			Too acid	0.88
Rubble land-----	35	Not rated		Poor		Not rated	
				Slope	0.00		
				Stone content	0.00		
				Cobble content	0.96		
LRT: Lorencito-----	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Depth to bedrock	0.00
		Too clayey	0.00	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.50	Shrink-swell	0.12		
Rombo-----	30	Fair		Poor		Poor	
		Too clayey	0.02	Slope	0.00	Slope	0.00
		Depth to bedrock	0.84	Low strength	0.00	Too clayey	0.01
		Organic matter content low	0.88	Depth to bedrock	0.00	Rock fragments	0.12
		Droughty	0.94	Shrink-swell	0.22	Depth to bedrock	0.84



Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LRT: Sarcillo-----	20	Poor Too clayey Droughty Depth to bedrock Water erosion	0.00 0.00 0.00 0.99	Poor Depth to bedrock Slope Low strength Shrink-swell	0.00 0.00 0.00 0.12	Poor Slope Too clayey Depth to bedrock	0.00 0.00 0.00
Ls: Las Animas-----	85	Fair Organic matter content low Water erosion Droughty	0.12 0.90 0.99	Fair Wetness depth	0.14	Fair Wetness depth  Salinity	0.14  0.88
LST: Lorencito-----	40	Poor Droughty Depth to bedrock Too clayey Organic matter content low	0.00 0.00 0.00 0.50	Poor Depth to bedrock Low strength Shrink-swell Slope	0.00 0.00 0.12 0.82	Poor Depth to bedrock Too clayey Slope	0.00 0.00 0.00
Sarcillo-----	30	Poor Too clayey Droughty Depth to bedrock Water erosion	0.00 0.00 0.00 0.99	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12	Poor Too clayey Depth to bedrock Slope	0.00 0.00 0.96

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LST: Trujillo-----	20	Fair Organic matter content low Water erosion	0.88 0.99	Good		Good	
Lt: Littlepine-----	85	Fair Organic matter content low Too clayey Too acid	0.50 0.68 0.95	Good		Fair Too clayey Slope	0.44 0.96
LvD: Lorencito-----	90	Poor Depth to bedrock Too clayey Droughty Organic matter content low	0.00 0.00 0.00 0.12	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12	Poor Depth to bedrock Too clayey Slope Rock fragments	0.00 0.00 0.37 0.92
LW: Littlepine-----	50	Fair Organic matter content low Too clayey Too acid	0.50 0.68 0.95	Fair Slope	0.08	Poor Slope Too clayey	0.00 0.44

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LW: Wahatoya-----	35	Fair Droughty Too clayey Organic matter content low Depth to bedrock Too acid	0.09 0.82 0.88 0.93 0.95	Poor Slope Depth to bedrock Cobble content	0.00 0.00 0.81	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.59 0.93
MaB: Mauricanyon, warm---	90	Good		Poor Low strength	0.00	Good	
MaW: Mauricanyon, wet----	85	Fair Too clayey	0.82	Poor Low strength	0.00	Fair Too clayey	0.77
MD: Dumps, mine-----	100	Not rated		Not rated		Not rated	
Mf: Moran-----	85	Poor Stone content Droughty Organic matter content low Cobble content Too acid	0.00 0.07 0.12 0.22 0.32	Poor Cobble content Stone content Slope	0.00 0.01 0.08	Poor Hard to reclaim (rock fragments) Rock fragments Slope Too acid	0.00 0.00 0.00 0.98

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MG: Tercio-----	60	Poor Too clayey Organic matter content low Too acid	0.00 0.12 0.68	Poor Low strength Slope Cobble content Shrink-swell	0.00 0.00 0.86 0.99	Poor Slope Too clayey Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00 0.01
Graneros-----	30	Poor Too clayey Organic matter content low Too acid Depth to bedrock Droughty	0.00 0.12 0.68 0.71 0.77	Poor Depth to bedrock Slope Low strength Shrink-swell	0.00 0.00 0.00 0.87	Poor Slope Rock fragments Too clayey Depth to bedrock	0.00 0.00 0.00 0.71
MGR: Midway, moist-----	40	Poor Droughty Depth to bedrock Too clayey Organic matter content low Sodium content	0.00 0.00 0.00 0.12 0.60	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12	Poor Depth to bedrock Too clayey Sodium content Slope Salinity	0.00 0.00 0.60 0.84 0.88

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MGR: Ritoazul-----	35	Poor Too clayey Carbonate content Organic matter content low Depth to bedrock	0.00 0.68 0.88 0.93	Poor Low strength Depth to bedrock Shrink-swell	0.00 0.00 0.29	Poor Too clayey Depth to bedrock Carbonate content	0.00 0.93 0.97
Rock outcrop-----	15	Not rated		Not rated		Not rated	
MI: Minqwet-----	55	Fair Carbonate content Organic matter content low Depth to bedrock Water erosion Too clayey Droughty	0.01 0.12 0.54 0.90 0.92 0.95	Poor Depth to bedrock Low strength	0.00 0.00	Fair Carbonate content Too clayey Depth to bedrock	0.27 0.53 0.54
Wiley-----	30	Fair Organic matter content low Carbonate content Water erosion Too clayey	0.12 0.68 0.90 0.98	Poor Low strength	0.00	Fair Too clayey	0.70

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MIK: Midway-----	45	Poor Depth to bedrock Too clayey Droughty Organic matter content low Sodium content	0.00 0.00 0.00 0.12 0.60	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.00 0.12	Poor Slope Depth to bedrock Too clayey Sodium content Salinity	0.00 0.00 0.00 0.60 0.88
Chicosa-----	40	Fair Organic matter content low Droughty Carbonate content	0.12 0.29 0.97	Good		Poor Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.00
MnA: Manzanst-----	90	Poor Too clayey Organic matter content low	0.00 0.12	Poor Low strength Shrink-swell	0.00 0.64	Poor Too clayey	0.00
MnB: Manzanst-----	85	Poor Too clayey Organic matter content low	0.00 0.12	Poor Low strength Shrink-swell	0.00 0.64	Poor Too clayey	0.00

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MnW: Aquic Haplustalfs---	90	Poor Too clayey Organic matter content low Sodium content	0.00 0.12 0.90	Poor Low strength Shrink-swell Wetness depth	0.00 0.62 0.68	Poor Too clayey Wetness depth	0.00 0.68
MoA: Mauricanyon-----	85	Good		Poor Low strength	0.00	Good	
MoB: Mauricanyon, dry---	85	Good		Fair Low strength	0.22	Good	
MoR: Mion-----	65	Poor Droughty Depth to bedrock Too clayey Organic matter content low Sodium content	0.00 0.00 0.00 0.12 0.60	Poor Depth to bedrock Low strength Shrink-swell Slope	0.00 0.00 0.12 0.92	Poor Depth to bedrock Too clayey Slope Sodium content Salinity	0.00 0.00 0.00 0.60 0.88
Rock outcrop-----	25	Not rated		Not rated		Not rated	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MP: Midway-----	40	Poor Droughty Depth to bedrock Too clayey Organic matter content low Sodium content	0.00 0.00 0.00 0.12 0.60	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12	Poor Depth to bedrock Too clayey Sodium content Slope Salinity	0.00 0.00 0.60 0.84 0.88
Razor-----	35	Poor Too clayey Depth to bedrock Salinity Organic matter content low Droughty Sodium content	0.00 0.46 0.50 0.88 0.92 0.97	Poor Low strength Depth to bedrock Shrink-swell	0.00 0.00 0.12	Poor Too clayey Depth to bedrock Sodium content	0.00 0.46 0.98
Rock outcrop-----	15	Not rated		Not rated		Not rated	
MR: Mirror-----	70	Poor Stone content Droughty Depth to bedrock Too acid Cobble content	0.00 0.00 0.16 0.50 0.62	Poor Slope Depth to bedrock Stone content Cobble content	0.00 0.00 0.00 0.68	Poor Slope Rock fragments Depth to bedrock Too acid	0.00 0.00 0.16 0.88



Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MR: Rock outcrop-----	20	Not rated		Not rated		Not rated	
MvC: Manvel-----	90	Fair Carbonate content Organic matter content low Water erosion	0.46 0.50 0.90	Poor Low strength	0.00	Fair Carbonate content	0.63
MyD: Midway-----	85	Poor Droughty Depth to bedrock Too clayey Organic matter content low Sodium content	0.00 0.00 0.00 0.12 0.60	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12	Poor Depth to bedrock Too clayey Sodium content Salinity Slope	0.00 0.00 0.60 0.88 0.96
MzA: Manzanola-----	85	Poor Too clayey Organic matter content low Sodium content Carbonate content Water erosion	0.00 0.12 0.60 0.95 0.99	Poor Low strength Shrink-swell	0.00 0.43	Poor Too clayey Sodium content	0.00 0.60

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MzB: Manzanola-----	85	Poor Too clayey Organic matter content low Water erosion	0.00 0.12 0.99	Poor Low strength Shrink-swell	0.00 0.31	Poor Too clayey	0.00
NM: Nopurg-----	45	Fair Organic matter content low Cobble content Too acid	0.12 0.22 0.68	Poor Slope Low strength Cobble content Shrink-swell	0.00 0.00 0.01 0.97	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Mitotes-----	40	Fair Organic matter content low Stone content Too acid	0.12 0.39 0.68	Poor Slope Shrink-swell	0.00 0.97	Poor Slope Rock fragments Hard to reclaim (rock fragments)	0.00 0.67 0.98
OeC: Otero-----	85	Fair Organic matter content low	0.12	Good		Good	
OtD: Oterodry-----	85	Fair Organic matter content low	0.50	Good		Good	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
OyB: Olnest-----	90	Fair Organic matter content low	0.50	Good		Good	
OyC: Olnest-----	85	Fair Organic matter content low	0.50	Good		Good	
PeD: Penrose-----	85	Poor Droughty Carbonate content Depth to bedrock Too alkaline Organic matter content low Water erosion	0.00 0.00 0.00 0.00 0.50 0.99	Poor Depth to bedrock	0.00	Poor Depth to bedrock Carbonate content Rock fragments	0.00 0.00 0.08
PeF: Penrose-----	40	Poor Droughty Carbonate content Depth to bedrock Too alkaline Organic matter content low Water erosion	0.00 0.00 0.00 0.00 0.50 0.99	Poor Depth to bedrock Slope	0.00 0.82	Poor Depth to bedrock Carbonate content Slope Rock fragments	0.00 0.00 0.00 0.08

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeF: Midway-----	35	Poor Droughty Depth to bedrock Too clayey Organic matter content low Sodium content	0.00 0.00 0.00 0.12 0.60	Poor Depth to bedrock Low strength Slope Shrink-swell	0.00 0.00 0.00 0.12	Poor Slope Depth to bedrock Too clayey Sodium content Salinity	0.00 0.00 0.00 0.60 0.88
Rock outcrop-----	15	Not rated		Not rated		Not rated	
PM: Penrose-----	50	Poor Droughty Carbonate content Depth to bedrock Too alkaline Organic matter content low Water erosion	0.00 0.00 0.00 0.00 0.50 0.99	Poor Depth to bedrock	0.00	Poor Depth to bedrock Carbonate content Rock fragments Slope	0.00 0.00 0.08 0.96

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PM: Minnequa-----	35	Fair Carbonate content Organic matter content low Droughty Depth to bedrock Water erosion Sodium content	0.01 0.12  0.14 0.46 0.90 0.97	Poor Depth to bedrock Low strength	0.00 0.00	Fair Depth to bedrock Sodium content	0.46 0.98
PnD: Penrose, moist-----	85	Poor Droughty Carbonate content Depth to bedrock Organic matter content low Sodium content Water erosion	0.00 0.00 0.00 0.88  0.97 0.99	Poor Depth to bedrock	0.00	Poor Depth to bedrock Carbonate content Slope	0.00 0.00 0.96
RaB: Ravine-----	85	Fair Too clayey Depth to bedrock Droughty Organic matter content low Carbonate content	0.08 0.39 0.85 0.88  0.95	Poor Low strength Depth to bedrock Shrink-swell	0.00 0.00 0.12	Fair Too clayey Depth to bedrock	0.06 0.39

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RaC: Ritoazul-----	85	Poor Too clayey Carbonate content Organic matter content low Depth to bedrock	0.00 0.68 0.88 0.93	Poor Low strength Depth to bedrock Shrink-swell	0.00 0.00 0.29	Poor Too clayey Depth to bedrock Carbonate content	0.00 0.93 0.97
RB: Raton-----	65	Poor Too clayey Droughty Depth to bedrock Stone content	0.00 0.00 0.00 0.00	Poor Depth to bedrock Low strength Stone content Shrink-swell	0.00 0.00 0.28 0.99	Poor Too clayey Depth to bedrock Rock fragments Slope	0.00 0.00 0.00 0.96
Barela-----	25	Poor Too clayey Stone content Organic matter content low	0.00 0.00 0.12	Poor Low strength Depth to bedrock Stone content Shrink-swell	0.00 0.39 0.41 0.97	Poor Rock fragments Too clayey Hard to reclaim (rock fragments)	0.00 0.00 0.68
Rc: Raku-----	85	Fair Too clayey Organic matter content low Carbonate content Water erosion	0.32 0.88 0.92 0.99	Poor Low strength Shrink-swell	0.00 0.72	Fair Too clayey	0.23

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RCA: Raku-----	90	Poor Too clayey Organic matter content low	0.00 0.88	Poor Low strength Shrink-swell	0.00 0.57	Poor Too clayey	0.00
Rd: Romound-----	85	Fair Sodium content Depth to bedrock Droughty Organic matter content low Water erosion Salinity	0.40 0.54 0.64 0.88 0.90 0.97	Poor Depth to bedrock	0.00	Fair Depth to bedrock Salinity Sodium content	0.54 0.75 0.90
RF: Rock outcrop-----	50	Not rated		Not rated		Not rated	
Rubble land-----	50	Not rated		Poor Slope Stone content Cobble content	0.00 0.00 0.96	Not rated	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rt: Raton-----	90	Poor Too clayey Droughty Depth to bedrock Stone content	0.00 0.00 0.00 0.00	Poor Depth to bedrock Low strength Stone content Shrink-swell	0.00 0.00 0.28 0.99	Poor Too clayey Depth to bedrock Rock fragments Slope	0.00 0.00 0.00 0.37
RyC: Ryegate-----	90	Fair Droughty Depth to bedrock Organic matter content low Carbonate content	0.77 0.84 0.88 0.92	Poor Depth to bedrock	0.00	Fair Depth to bedrock	0.84
RzD: Rizozo, moist-----	75	Poor Droughty Depth to bedrock Organic matter content low	0.00 0.00 0.12	Poor Depth to bedrock	0.00	Poor Depth to bedrock Rock fragments Slope	0.00 0.00 0.37
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Sc: Schwacheim-----	90	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock	0.00	Poor Depth to bedrock Rock fragments Slope	0.00 0.00 0.37



Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ScR: Schwacheim-----	70	Poor Droughty Depth to bedrock	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.92	Poor Depth to bedrock Rock fragments Slope	0.00 0.00 0.00
Rock outcrop-----	20	Not rated		Not rated		Not rated	
SG: Ovmesa-----	50	Poor Droughty Depth to bedrock Organic matter content low Salinity Water erosion	0.00 0.00 0.12 0.50 0.90	Poor Depth to bedrock Slope	0.00 0.50	Poor Salinity Depth to bedrock Slope Rock fragments	0.00 0.00 0.00 0.59
Romound-----	35	Fair Sodium content Depth to bedrock Droughty Organic matter content low Water erosion Salinity	0.40 0.54 0.64 0.88 0.90 0.97	Poor Depth to bedrock	0.00	Fair Depth to bedrock Salinity Sodium content	0.54 0.75 0.90

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ShD: Shingle-----	65	Poor Droughty Depth to bedrock Organic matter content low	0.00 0.00 0.88	Poor Depth to bedrock Low strength	0.00 0.00	Poor Depth to bedrock Slope	0.00 0.96
Penrose-----	23	Poor Droughty Carbonate content Depth to bedrock Too alkaline Organic matter content low Water erosion	0.00 0.00 0.00 0.00 0.50 0.99	Poor Depth to bedrock	0.00	Poor Depth to bedrock Carbonate content Rock fragments Slope	0.00 0.00 0.08 0.96
SL: Standard-----	45	Poor Droughty Salinity Organic matter content low Depth to bedrock Too acid	0.00 0.00 0.12 0.29 0.84	Poor Slope Depth to bedrock	0.00 0.00	Poor Slope Rock fragments Depth to bedrock	0.00 0.00 0.29

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SL: Leadville-----	30	Fair Organic matter content low Cobble content Too acid Droughty	0.12 0.63 0.84 0.98	Poor Slope Cobble content	0.00 0.10	Poor Slope Hard to reclaim (rock fragments) Rock fragments	0.00 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	
SM: Schamber-----	65	Poor Too sandy Droughty Organic matter content low	0.00 0.00 0.12	Good		Poor Too sandy Hard to reclaim (rock fragments) Rock fragments Slope	0.00 0.00 0.00 0.04
Midway-----	25	Poor Droughty Depth to bedrock Too clayey Organic matter content low Sodium content	0.00 0.00 0.00 0.12 0.60	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12	Poor Depth to bedrock Too clayey Slope Sodium content Salinity	0.00 0.00 0.04 0.60 0.88

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sn: Sitcan-----	90	Fair Organic matter content low	0.12	Good		Fair Rock fragments	0.88
SR: Saruche-----	40	Poor Droughty Depth to bedrock Too clayey Organic matter content low	0.00 0.00 0.08 0.50	Poor Depth to bedrock Slope Low strength Shrink-swell	0.00 0.00 0.00 0.65	Poor Slope Depth to bedrock Too clayey	0.00 0.00 0.05
Rombo-----	35	Fair Too clayey Depth to bedrock Organic matter content low Droughty	0.02 0.84 0.88 0.94	Poor Slope Low strength Depth to bedrock Shrink-swell	0.00 0.00 0.00 0.22	Poor Slope Too clayey Rock fragments Depth to bedrock	0.00 0.01 0.12 0.84
Rock outcrop-----	15	Not rated		Not rated		Not rated	
Sw: Molinaro-----	90	Good		Poor Low strength	0.00	Good	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TbA: Trementina, warm----	90	Fair Too clayey Water erosion	0.56 0.90	Poor Low strength	0.00	Fair Too clayey	0.46
TeE: Tecolote-----	90	Fair Organic matter content low Droughty Cobble content Too acid	0.12 0.65 0.90 0.95	Fair Cobble content	0.02	Poor Rock fragments Hard to reclaim (rock fragments) Slope	0.00 0.00 0.84
TF: Torreon, stony-----	50	Poor Too clayey Organic matter content low Carbonate content	0.00 0.12 0.92	Poor Low strength Shrink-swell	0.00 0.45	Poor Too clayey Hard to reclaim (rock fragments) Slope Rock fragments	0.00 0.01 0.37 0.96
Fuera-----	35	Poor Too clayey Organic matter content low Too acid	0.00 0.12 0.95	Poor Low strength Slope Cobble content Shrink-swell	0.00 0.08 0.79 0.94	Poor Slope Too clayey Rock fragments Hard to reclaim (rock fragments)	0.00 0.00 0.00 0.18

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TgD: Trujillo-----	90	Fair Organic matter content low	0.12	Good		Good	
TgE: Trujillo-----	90	Fair Organic matter content low	0.12	Fair Slope	0.92	Poor Slope	0.00
TL: Torreon, stony-----	55	Poor Too clayey Organic matter content low Carbonate content	0.00 0.12 0.92	Poor Low strength Shrink-swell	0.00 0.45	Poor Too clayey Hard to reclaim (rock fragments) Slope Rock fragments	0.00 0.01 0.37 0.96
Lorencito-----	35	Poor Droughty Depth to bedrock Too clayey Organic matter content low	0.00 0.00 0.00 0.12	Poor Depth to bedrock Slope	0.00 0.50	Poor Depth to bedrock Too clayey Slope Rock fragments	0.00 0.00 0.00 0.98

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TmD: Trujillo-----	90	Fair Organic matter content low Water erosion	0.88 0.99	Good		Good	
TnA: Trementina, cool----	90	Fair Too clayey	0.82	Poor Low strength Shrink-swell	0.00 0.99	Fair Too clayey	0.82
TnB: Trementina, dry-----	85	Good		Good		Good	
To: Torreon-----	85	Poor Too clayey Organic matter content low Carbonate content	0.00 0.12 0.68	Poor Low strength Shrink-swell	0.00 0.49	Poor Too clayey Hard to reclaim (rock fragments)	0.00 0.32
ToD: Torreon-----	85	Poor Too clayey Carbonate content	0.00 0.92	Poor Low strength Shrink-swell	0.00 0.49	Poor Too clayey Hard to reclaim (rock fragments) No rock fragments	0.00 0.01 0.99

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ToE: Torreon-----	50	Poor Too clayey Organic matter content low Carbonate content	0.00 0.12 0.68	Poor Low strength Shrink-swell	0.00 0.49	Poor Too clayey Hard to reclaim (rock fragments) Slope	0.00 0.32 0.84
Torreon, stony-----	45	Poor Too clayey Organic matter content low Carbonate content	0.00 0.12 0.92	Poor Low strength Shrink-swell	0.00 0.45	Poor Too clayey Hard to reclaim (rock fragments) Slope Rock fragments	0.00 0.01 0.16 0.96
TsD: Travessilla-----	75	Poor Droughty Depth to bedrock Organic matter content low	0.00 0.00 0.12	Poor Depth to bedrock	0.00	Poor Depth to bedrock	0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	



Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TsE: Torreon-----	90	Poor Too clayey Organic matter content low Carbonate content	0.00 0.12 0.92	Poor Low strength Shrink-swell	0.00 0.45	Poor Too clayey Hard to reclaim (rock fragments) Slope Rock fragments	0.00 0.01 0.16 0.96
TsF: Travessilla-----	50	Poor Droughty Depth to bedrock Organic matter content low	0.00 0.00 0.12	Poor Depth to bedrock Slope	0.00 0.00	Poor Slope Depth to bedrock	0.00 0.00
Rock outcrop-----	40	Not rated		Not rated		Not rated	
Us: Aridic Calciustolls-	60	Poor Carbonate content Organic matter content low Stone content Too acid	0.00 0.50 0.86 0.95	Poor Slope Low strength Depth to bedrock Stone content	0.00 0.00 0.04 0.80	Poor Slope Carbonate content Rock fragments Hard to reclaim (rock fragments)	0.00 0.18 0.46 0.92

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VB: Vona, overblown-----	85	Poor Wind erosion Organic matter content low Too sandy	0.00 0.12 0.20	Good		Fair Too sandy	0.20
VD: Dargol-----	40	Poor Too clayey Organic matter content low Depth to bedrock Droughty Too acid	0.00 0.12 0.46 0.65 0.95	Poor Low strength Depth to bedrock Shrink-swell	0.00 0.00 0.35	Poor Too clayey Depth to bedrock Rock fragments	0.00 0.46 0.59
Stout-----	25	Poor Droughty Depth to bedrock Organic matter content low Too acid	0.00 0.00 0.12 0.95	Poor Depth to bedrock	0.00	Poor Depth to bedrock Rock fragments	0.00 0.00

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VD: Vamer-----	20	Poor Droughty Depth to bedrock Too clayey Organic matter content low Too acid	0.00 0.00 0.00 0.12 0.95	Poor Depth to bedrock Low strength Shrink-swell	0.00 0.00 0.12	Poor Depth to bedrock Too clayey Rock fragments	0.00 0.00 0.96
VnC: Vona-----	85	Fair Organic matter content low	0.12	Good		Good	
VoB: Vona-----	85	Fair Organic matter content low	0.12	Good		Good	
VoC: Vonid-----	85	Fair Too sandy Organic matter content low	0.07 0.12	Good		Fair Too sandy	0.07

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VT: Villedry-----	50	Fair Carbonate content Organic matter content low Too clayey Depth to bedrock Water erosion	0.08 0.88 0.92 0.99 0.99	Poor Low strength Depth to bedrock	0.00 0.00	Fair Too clayey Depth to bedrock	0.66 0.99
Travessilla-----	40	Poor Droughty Depth to bedrock Organic matter content low	0.00 0.00 0.12	Poor Depth to bedrock	0.00	Poor Depth to bedrock	0.00
VtC: Valent-----	85	Poor Too sandy Wind erosion Organic matter content low Droughty	0.00 0.00 0.12 0.87	Good		Poor Too sandy	0.00
W: Water-----	100	Not rated		Not rated		Not rated	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Wa: Wapiti-----	85	Fair Too clayey Organic matter content low Carbonate content	0.82 0.88 0.97	Poor Low strength	0.00	Fair Too clayey	0.59
WC: Plughat-----	43	Fair Carbonate content Too clayey Organic matter content low Water erosion	0.68 0.68 0.88 0.99	Fair Depth to bedrock Low strength	0.39 0.78	Fair Too clayey	0.49
Villegreen-----	41	Fair Carbonate content Depth to bedrock Organic matter content low Droughty Water erosion	0.32 0.71 0.88 0.98 0.99	Poor Low strength Depth to bedrock	0.00 0.00	Fair Depth to bedrock	0.71

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WeB: Wiley-----	85	Fair Organic matter content low Carbonate content Water erosion Too clayey	0.12 0.68 0.90 0.98	Poor Low strength	0.00	Fair Too clayey	0.70
WM: Minnequa-----	50	Fair Carbonate content Organic matter content low Droughty Depth to bedrock Water erosion Sodium content	0.01 0.12 0.14 0.46 0.90 0.97	Poor Depth to bedrock Low strength	0.00 0.00	Fair Depth to bedrock Sodium content	0.46 0.98
Wilid-----	35	Fair Organic matter content low Too clayey Water erosion	0.50 0.68 0.99	Poor Low strength	0.00	Fair Too clayey	0.44
WrB: Wilid-----	90	Fair Organic matter content low Water erosion	0.12 0.68	Poor Low strength	0.00	Good	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WV: Almagre-----	45	Fair Carbonate content Organic matter content low Water erosion	0.20 0.88 0.99	Poor Low strength Depth to bedrock	0.00 0.58	Good	
Villedry-----	44	Fair Carbonate content Organic matter content low Too clayey Depth to bedrock Water erosion	0.08 0.88 0.92 0.99 0.99	Poor Low strength Depth to bedrock	0.00 0.00	Fair Too clayey Depth to bedrock	0.66 0.99
WyB: Willid-----	85	Fair Organic matter content low Too clayey Water erosion	0.50 0.68 0.99	Poor Low strength	0.00	Fair Too clayey	0.44
YaA: Yattle-----	90	Poor Too alkaline Organic matter content low	0.00 0.50	Good		Good	

Table 18.--Source of reclamation material, roadfill, and topsoil--continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
YaC: Yattle-----	90	Poor Too alkaline Organic matter content low	0.00 0.50	Good		Good	
ZR: Rizozo-----	75	Poor Droughty Depth to bedrock Organic matter content low	0.00 0.00 0.12	Poor Depth to bedrock	0.00	Poor Depth to bedrock Rock fragments Slope	0.00 0.00 0.37
Rock outcrop-----	15	Not rated		Not rated		Not rated	
ZRF: Rizozo-----	75	Poor Droughty Depth to bedrock Organic matter content low	0.00 0.00 0.12	Poor Depth to bedrock Slope	0.00 0.00	Poor Slope Depth to bedrock Rock fragments	0.00 0.00 0.00
Rock outcrop-----	15	Not rated		Not rated		Not rated	



Table 19.--Ponds and embankments

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AA:							
Ayon-----	45	Very limited Seepage Slope	1.00 0.32	Somewhat limited Large stones content	0.76	Very limited Depth to water	1.00
Apache-----	40	Very limited Depth to bedrock Slope	1.00 0.32	Very limited Thin layer Large stones content Piping	1.00 0.52 0.01	Very limited Depth to water	1.00
AC:							
Ayon-----	50	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.26 0.15	Very limited Depth to water	1.00
Capulin-----	45	Somewhat limited Seepage Slope	0.70 0.32	Somewhat limited Piping	0.01	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AcC: Acantilado-----	85	Somewhat limited Seepage Slope	0.70 0.08	Somewhat limited Piping	0.65	Very limited Depth to water	1.00
AED: Dams, earthen dam---	100	Not rated		Not rated		Not rated	
AnB: Ascalon-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.67	Very limited Depth to water	1.00
Ap: Apache-----	85	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Large stones content Piping	1.00 0.52 0.01	Very limited Depth to water	1.00
AR: Calcidic Argiustolls	65	Very limited Slope Seepage	1.00 0.05	Somewhat limited Large stones content	0.98	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AsB: Ascalon, overblown--	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.04	Very limited Depth to water	1.00
AV: Aguilar-----	45	Somewhat limited Seepage	0.01	Very limited Salinity Piping	1.00 1.00	Very limited Depth to water	1.00
Beckton-----	45	Very limited Seepage	1.00	Very limited Piping Salinity Seepage	1.00 0.97 0.01	Very limited Depth to water	1.00
AvC: Aguilar-----	90	Somewhat limited Slope Seepage	0.08 0.01	Very limited Salinity Hard to pack	1.00 1.00	Very limited Depth to water	1.00
AW: Allens Park-----	45	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.61	Somewhat limited Thin layer	0.61	Very limited Depth to water	1.00
Wahatoya-----	40	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.66	Somewhat limited Thin layer	0.66	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BaA: Baca-----	85	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
BaB: Bacid-----	85	Somewhat limited Seepage	0.57	Not limited		Very limited Depth to water	1.00
BaC: Baca, cool-----	85	Somewhat limited Seepage Slope	0.70 0.08	Not limited		Very limited Depth to water	1.00
BcA: Baca, cool-----	85	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
Bk: Fallriver-----	85	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.16 0.03	Very limited Depth to water	1.00
BnA: Bacid-----	85	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BT: Barela-----	60	Somewhat limited Depth to bedrock	0.16	Somewhat limited Hard to pack Thin layer	0.23 0.16	Very limited Depth to water	1.00
Raton-----	25	Very limited Depth to bedrock Slope	1.00 0.68	Very limited Thin layer Large stones content Hard to pack	1.00 1.00 0.10	Very limited Depth to water	1.00
BwA: Bloom-----	85	Somewhat limited Seepage	0.70	Very limited Depth to saturated zone	1.00	Somewhat limited Slow refill Cutbanks cave	0.30 0.10
Bx: Boxcanyon-----	85	Somewhat limited Seepage Depth to bedrock	0.70 0.03	Somewhat limited Thin layer	0.03	Very limited Depth to water	1.00
CaD: Razor-----	85	Very limited Slope Depth to bedrock	1.00 0.16	Very limited Hard to pack Thin layer	1.00 0.90	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CC: Chacuaco-----	50	Somewhat limited Depth to bedrock Seepage	0.86 0.70	Somewhat limited Thin layer Piping	0.86 0.03	Very limited Depth to water	1.00
Capulin-----	40	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.01	Very limited Depth to water	1.00
CD: Chacuaco-----	60	Somewhat limited Depth to bedrock Seepage Slope	0.86 0.70 0.08	Somewhat limited Thin layer Piping	0.86 0.28	Very limited Depth to water	1.00
Dalero-----	30	Very limited Depth to bedrock Slope	1.00 0.32	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Co: Collegiate-----	85	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	0.99 0.82	Very limited Cutbanks cave Depth to saturated zone	1.00 0.01
CpA: Calemore-----	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.04	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CpB: Calemore-----	85	Somewhat limited Seepage	0.89	Somewhat limited Piping	0.02	Very limited Depth to water	1.00
CpC: Capulin-----	85	Somewhat limited Seepage Slope	0.70 0.08	Somewhat limited Piping	0.01	Very limited Depth to water	1.00
CpT: Capulin-----	45	Somewhat limited Seepage Slope	0.70 0.08	Somewhat limited Piping	0.01	Very limited Depth to water	1.00
Torreon-----	40	Somewhat limited Slope Seepage	0.08 0.05	Somewhat limited Hard to pack	0.52	Very limited Depth to water	1.00
Ct: Breece-----	90	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.04	Very limited Depth to water	1.00
CwC: Cumulic Cryaquolls--	90	Somewhat limited Slope	0.08	Very limited Depth to saturated zone Hard to pack	1.00 0.79	Very limited Slow refill Cutbanks cave	1.00 0.10

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DaE: Dalerose-----	75	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Depth to bedrock Slope	1.00 1.00	Not rated		Not rated	
De: Davtone-----	85	Very limited Seepage Slope	1.00 0.68	Not limited		Very limited Depth to water	1.00
DFV: Fuera-----	35	Very limited Slope	1.00	Somewhat limited Hard to pack	0.53	Very limited Depth to water	1.00
Dargol-----	30	Very limited Slope Depth to bedrock	1.00 0.88	Somewhat limited Thin layer Hard to pack	0.88 0.29	Very limited Depth to water	1.00
Vamer-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Hard to pack	1.00 0.01	Very limited Depth to water	1.00



Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DH: Davtone-----	45	Very limited Seepage Slope	1.00 0.08	Somewhat limited Seepage	0.02	Very limited Depth to water	1.00
Histic Cryaquolls---	40	Very limited Seepage Slope	1.00 0.08	Very limited Depth to saturated zone Seepage Large stones content	1.00 0.03 0.02	Somewhat limited Cutbanks cave Large stones content	0.10 0.02
Dm: Demayo-----	85	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Large stones content	1.00 0.45	Very limited Depth to water	1.00
Ds: Des Moines-----	85	Very limited Slope Seepage	1.00 0.57	Somewhat limited Large stones content	0.99	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Dt: Davtone-----	85	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.02	Very limited Depth to water	1.00
Dv: Feterita-----	95	Somewhat limited Seepage	0.72	Very limited Ponding Depth to saturated zone	1.00 1.00	Very limited Depth to water	1.00
Ec: Eguaje-----	50	Somewhat limited Slope Seepage	0.92 0.57	Somewhat limited Large stones content	0.02	Very limited Depth to water	1.00
Demayo-----	35	Very limited Depth to bedrock Slope	1.00 0.92	Very limited Thin layer Large stones content	1.00 0.45	Very limited Depth to water	1.00
EL: Ellicott-----	50	Very limited Seepage	1.00	Somewhat limited Seepage	0.95	Very limited Depth to water	1.00
Las Animas-----	35	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.75	Very limited Cutbanks cave Salinity and saturated zone	1.00 0.01

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
ES: Embargo-----	60	Somewhat limited Depth to bedrock Slope Seepage	0.96 0.32 0.02	Somewhat limited Thin layer Piping Large stones content	0.96 0.89 0.82	Very limited Depth to water	1.00
Schwacheim-----	30	Very limited Depth to bedrock Slope	1.00 0.68	Very limited Thin layer Seepage	1.00 0.69	Very limited Depth to water	1.00
FcB: Wapiti-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.01	Very limited Depth to water	1.00
FcC: Fort-----	85	Very limited Seepage Slope	1.00 0.08	Somewhat limited Piping	0.07	Very limited Depth to water	1.00
FcD: Fort-----	90	Very limited Seepage Slope	1.00 0.08	Somewhat limited Piping Seepage	0.61 0.01	Very limited Depth to water	1.00
Fp: Fishers-----	85	Very limited Slope Seepage	1.00 0.04	Not limited		Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FtC: Olnest-----	90	Somewhat limited Seepage Slope	0.70 0.08	Somewhat limited Seepage	0.03	Very limited Depth to water	1.00
FuD: Bandarito-----	85	Somewhat limited Slope Seepage	0.32 0.05	Somewhat limited Hard to pack	0.37	Very limited Depth to water	1.00
FuE: Bandarito-----	85	Very limited Slope Seepage	1.00 0.05	Somewhat limited Hard to pack	0.37	Very limited Depth to water	1.00
FW: Bandarito-----	45	Very limited Slope Seepage	1.00 0.05	Somewhat limited Hard to pack	0.37	Very limited Depth to water	1.00
Fishers-----	40	Very limited Slope Seepage	1.00 0.04	Not limited		Very limited Depth to water	1.00
FyB: Furia-----	85	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Hard to pack	1.00 0.19	Somewhat limited Slow refill Cutbanks cave	0.96 0.10

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GA: Gulnare-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Allens Park-----	35	Very limited Slope Depth to bedrock Seepage	1.00 0.95 0.70	Somewhat limited Thin layer	0.95	Very limited Depth to water	1.00
GC: Groomer-----	50	Very limited Slope Seepage	1.00 0.03	Somewhat limited Hard to pack	0.25	Very limited Depth to water	1.00
Cucharas-----	40	Very limited Slope Depth to bedrock	1.00 0.08	Somewhat limited Thin layer Hard to pack	0.81 0.07	Very limited Depth to water	1.00
GgB: Glenberg-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.08	Very limited Depth to water	1.00
GmE: Aquic Dystrocryepts-	90	Very limited Seepage Slope	1.00 1.00	Somewhat limited Depth to saturated zone	0.86	Very limited Cutbanks cave Depth to saturated zone	1.00 0.06

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Gn: Angostura-----	90	Very limited Slope Seepage	1.00 0.70	Somewhat limited Large stones content	0.14	Very limited Depth to water	1.00
GP: Pits, gravel-----	90	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage Large stones content	0.91 0.16	Very limited Depth to water	1.00
GR: Gulnare-----	60	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Rock outcrop-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	
Hn: Hoehne-----	90	Very limited Seepage	1.00	Somewhat limited Seepage	0.01	Very limited Depth to water	1.00
HvA: Haversid-----	85	Somewhat limited Seepage	0.72	Somewhat limited Piping	0.33	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HyD: Humbarsprings-----	85	Very limited Seepage Slope	1.00 0.92	Somewhat limited Seepage	0.79	Very limited Depth to water	1.00
K2D: Kimera-----	50	Very limited Seepage Slope	1.00 0.68	Somewhat limited Piping	0.20	Very limited Depth to water	1.00
Chicosa-----	35	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.58	Very limited Depth to water	1.00
KI: Kandrix-----	60	Somewhat limited Slope Seepage	0.68 0.57	Somewhat limited Piping	0.42	Very limited Depth to water	1.00
Chicosa-----	30	Very limited Seepage Slope	1.00 0.68	Somewhat limited Seepage	0.08	Very limited Depth to water	1.00
Km: Kimera-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.15	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KmC: Wilid-----	50	Somewhat limited Seepage Slope	0.70 0.08	Not limited		Very limited Depth to water	1.00
Kimera-----	35	Very limited Seepage Slope	1.00 0.68	Somewhat limited Piping	0.07	Very limited Depth to water	1.00
KO: Kimera-----	46	Somewhat limited Seepage Slope	0.70 0.32	Somewhat limited Piping	0.16	Very limited Depth to water	1.00
Oterodry-----	44	Very limited Seepage Slope	1.00 0.32	Not limited		Very limited Depth to water	1.00
Kw: Kandrix-----	85	Very limited Seepage Slope	1.00 0.08	Somewhat limited Piping	0.85	Very limited Depth to water	1.00
KwC: Kandrix-----	50	Somewhat limited Seepage Slope	0.70 0.08	Somewhat limited Piping	0.34	Very limited Depth to water	1.00



Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
KwC: Wiley-----	35	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.17	Very limited Depth to water	1.00
La: Lanola-----	85	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Lb: La Brier-----	90	Somewhat limited Seepage	0.04	Not limited		Very limited Depth to water	1.00
Ld: Leadville-----	85	Very limited Seepage  Slope	1.00  1.00	Somewhat limited Large stones content	0.25	Very limited Depth to water	1.00
LG: Manzanst-----	60	Somewhat limited Slope Seepage	0.68 0.01	Somewhat limited Piping	0.10	Very limited Depth to water	1.00
Ritoazul-----	30	Very limited Slope Depth to bedrock	1.00 0.03	Very limited Hard to pack Thin layer	1.00 0.66	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LH: Leadville-----	60	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content	0.25	Very limited Depth to water	1.00
Howlett-----	30	Very limited Slope Seepage	1.00 0.70	Not limited		Very limited Depth to water	1.00
Lo: La Brier-----	75	Somewhat limited Seepage	0.04	Not limited		Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Depth to bedrock Slope	1.00 0.32	Not rated		Not rated	
LoA: Limon-----	85	Not limited		Somewhat limited Hard to pack	0.76	Very limited Depth to water	1.00
LR: Fallriver-----	50	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content Seepage	0.16 0.03	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LR: Rubble land-----	35	Very limited Seepage Slope	1.00 1.00	Not rated		Very limited Depth to water	1.00
LRT: Lorencito-----	40	Very limited Slope Depth to bedrock Seepage	1.00 0.61 0.43	Very limited Thin layer Hard to pack	1.00 0.43	Very limited Depth to water	1.00
Rombo-----	30	Very limited Slope Depth to bedrock	1.00 0.05	Somewhat limited Thin layer	0.74	Very limited Depth to water	1.00
Sarcillo-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Hard to pack	1.00 0.11	Very limited Depth to water	1.00
Ls: Las Animas-----	85	Very limited Seepage	1.00	Very limited Depth to saturated zone Seepage	1.00 0.75	Very limited Cutbanks cave Salinity and saturated zone	1.00 0.01

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LST: Lorencito-----	40	Very limited Slope Depth to bedrock Seepage	1.00 0.61 0.43	Very limited Thin layer Hard to pack	1.00 0.43	Very limited Depth to water	1.00
Sarcillo-----	30	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Hard to pack	1.00 0.11	Very limited Depth to water	1.00
Trujillo-----	20	Somewhat limited Seepage Slope	0.81 0.68	Somewhat limited Seepage	0.01	Very limited Depth to water	1.00
Lt: Littlepine-----	85	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.04	Very limited Depth to water	1.00
LvD: Lorencito-----	90	Very limited Slope Depth to bedrock Seepage	1.00 0.53 0.43	Very limited Thin layer Hard to pack	1.00 0.31	Very limited Depth to water	1.00
LW: Littlepine-----	50	Very limited Slope Seepage	1.00 1.00	Somewhat limited Seepage	0.04	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
LW: Wahatoya-----	35	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.66	Somewhat limited Thin layer	0.66	Very limited Depth to water	1.00
MaB: Mauricanyon, warm---	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.25	Very limited Depth to water	1.00
MaW: Mauricanyon, wet----	85	Somewhat limited Seepage	0.70	Somewhat limited Depth to saturated zone Piping	0.46 0.03	Somewhat limited Slow refill Depth to saturated zone Cutbanks cave	0.30 0.24 0.10
MD: Dumps, mine-----	100	Very limited Seepage Slope	1.00 1.00	Not rated		Not rated	
Mf: Moran-----	85	Very limited Seepage Slope	1.00 1.00	Very limited Large stones content Seepage	1.00 0.05	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MG: Tercio-----	60	Very limited Slope Seepage	1.00 0.05	Somewhat limited Hard to pack	0.27	Very limited Depth to water	1.00
Graneros-----	30	Very limited Slope Depth to bedrock	1.00 0.08	Somewhat limited Thin layer	0.81	Very limited Depth to water	1.00
MGR: Midway, moist-----	40	Very limited Slope Depth to bedrock	1.00 0.69	Very limited Thin layer Hard to pack	1.00 1.00	Very limited Depth to water	1.00
Ritoazul-----	35	Somewhat limited Depth to bedrock	0.03	Very limited Hard to pack Thin layer	1.00 0.66	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Depth to bedrock Slope	1.00 1.00	Not rated		Not rated	
MI: Minqwet-----	55	Somewhat limited Depth to bedrock Seepage	0.11 0.05	Somewhat limited Thin layer Piping	0.86 0.01	Very limited Depth to water	1.00
Wiley-----	30	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.17	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MIK: Midway-----	45	Very limited Slope Depth to bedrock	1.00 0.53	Very limited Thin layer Hard to pack	1.00 0.90	Very limited Depth to water	1.00
Chicosa-----	40	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.08	Very limited Depth to water	1.00
MnA: Manzanst-----	90	Somewhat limited Seepage	0.01	Somewhat limited Piping	0.10	Very limited Depth to water	1.00
MnB: Manzanst-----	85	Somewhat limited Seepage	0.01	Somewhat limited Piping	0.10	Very limited Depth to water	1.00
MnW: Aquic Haplustalfs---	90	Somewhat limited Seepage	0.01	Somewhat limited Depth to saturated zone Piping	0.98 0.10	Somewhat limited Slow refill Cutbanks cave Depth to saturated zone	0.99 0.10 0.01
MoA: Mauricanyon-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.13	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MoB: Mauricanyon, dry----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.31	Very limited Depth to water	1.00
MoR: Mion-----	65	Very limited Slope Depth to bedrock	1.00 0.69	Very limited Thin layer Hard to pack	1.00 0.56	Very limited Depth to water	1.00
Rock outcrop-----	25	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	
MP: Midway-----	40	Very limited Slope Depth to bedrock	1.00 0.78	Very limited Thin layer Hard to pack	1.00 0.66	Very limited Depth to water	1.00
Razor-----	35	Somewhat limited Depth to bedrock	0.13	Very limited Hard to pack Thin layer Salinity	1.00 0.88 0.50	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Depth to bedrock Slope	1.00 1.00	Not rated		Not rated	



Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MR: Mirror-----	70	Very limited Seepage Slope Depth to bedrock	1.00 1.00 0.96	Very limited Large stones content Thin layer	1.00 0.96	Very limited Depth to water	1.00
Rock outcrop-----	20	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	
MvC: Manvel-----	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.10	Very limited Depth to water	1.00
MyD: Midway-----	85	Very limited Slope Depth to bedrock	1.00 0.69	Very limited Thin layer Hard to pack	1.00 0.96	Very limited Depth to water	1.00
MzA: Manzanola-----	85	Somewhat limited Seepage	0.05	Very limited Piping	1.00	Very limited Depth to water	1.00
MzB: Manzanola-----	85	Somewhat limited Seepage	0.04	Somewhat limited Piping	0.10	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NM: Nopurg-----	45	Very limited Slope Seepage	1.00 0.70	Somewhat limited Large stones content	0.48	Very limited Depth to water	1.00
Mitotes-----	40	Very limited Slope Seepage	1.00 0.70	Somewhat limited Seepage	0.04	Very limited Depth to water	1.00
OeC: Otero-----	85	Very limited Seepage Slope	1.00 0.08	Somewhat limited Seepage	0.03	Very limited Depth to water	1.00
OtD: Oterodry-----	85	Very limited Seepage Slope	1.00 0.32	Not limited		Very limited Depth to water	1.00
OyB: Olnest-----	90	Very limited Seepage	1.00	Somewhat limited Seepage	0.01	Very limited Depth to water	1.00
OyC: Olnest-----	85	Very limited Seepage Slope	1.00 0.32	Somewhat limited Seepage	0.01	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PeD: Penrose-----	85	Very limited Depth to bedrock Slope	1.00 0.32	Very limited Thin layer Piping	1.00 0.25	Very limited Depth to water	1.00
PeF: Penrose-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Piping	1.00 0.25	Very limited Depth to water	1.00
Midway-----	35	Very limited Slope Depth to bedrock	1.00 0.78	Very limited Thin layer Hard to pack	1.00 1.00	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	
PM: Penrose-----	50	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Piping	1.00 0.25	Very limited Depth to water	1.00
Minnequa-----	35	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.13 0.08	Somewhat limited Thin layer Piping	0.88 0.36	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PnD: Penrose, moist-----	85	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Piping	1.00 0.78	Very limited Depth to water	1.00
RaB: Ravine-----	85	Somewhat limited Depth to bedrock	0.16	Somewhat limited Thin layer Hard to pack	0.90 0.48	Very limited Depth to water	1.00
RaC: Ritoazul-----	85	Somewhat limited Depth to bedrock	0.03	Very limited Hard to pack Thin layer	1.00 0.66	Very limited Depth to water	1.00
RB: Raton-----	65	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Large stones content Hard to pack	1.00 1.00 0.10	Very limited Depth to water	1.00
Barela-----	25	Somewhat limited Depth to bedrock Slope	0.16 0.08	Somewhat limited Hard to pack Thin layer	0.23 0.16	Very limited Depth to water	1.00
Rc: Raku-----	85	Somewhat limited Seepage	0.05	Not limited		Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RCA: Raku-----	90	Somewhat limited Seepage	0.05	Not limited		Very limited Depth to water	1.00
Rd: Romound-----	85	Somewhat limited Seepage Depth to bedrock	0.70 0.11	Very limited Piping Thin layer Salinity	1.00 0.86 0.03	Very limited Depth to water	1.00
RF: Rock outcrop-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	
Rubble land-----	50	Very limited Seepage Slope	1.00 1.00	Not rated		Very limited Depth to water	1.00
Rt: Raton-----	90	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Large stones content Hard to pack	1.00 1.00 0.10	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RyC: Ryegate-----	90	Somewhat limited Depth to bedrock Seepage Slope	0.74 0.70 0.32	Somewhat limited Thin layer	0.74	Very limited Depth to water	1.00
RzD: Rizozo, moist-----	75	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	
Sc: Schwacheim-----	90	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Seepage	1.00 0.69	Very limited Depth to water	1.00
ScR: Schwacheim-----	70	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Seepage	1.00 0.69	Very limited Depth to water	1.00
Rock outcrop-----	20	Very limited Depth to bedrock Slope	1.00 1.00	Not rated		Not rated	

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
SG: Ovmesa-----	50	Very limited Slope Depth to bedrock	1.00 0.69	Very limited Piping Thin layer Salinity	1.00 1.00 0.50	Very limited Depth to water	1.00
Romound-----	35	Somewhat limited Seepage Slope Depth to bedrock	0.70 0.68 0.11	Very limited Piping Thin layer Salinity	1.00 0.86 0.03	Very limited Depth to water	1.00
ShD: Shingle-----	65	Very limited Slope Depth to bedrock	1.00 0.80	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Penrose-----	23	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer Piping	1.00 0.25	Very limited Depth to water	1.00
SL: Scandard-----	45	Very limited Slope Depth to bedrock Seepage	1.00 0.93 0.70	Very limited Salinity Thin layer	1.00 0.93	Very limited Depth to water	1.00
Leadville-----	30	Very limited Seepage Slope	1.00 1.00	Somewhat limited Large stones content	0.25	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Rock outcrop-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	
SM: Schamber-----	65	Very limited Seepage Slope	1.00 1.00	Somewhat limited Seepage	0.12	Very limited Depth to water	1.00
Midway-----	25	Very limited Slope Depth to bedrock	1.00 0.69	Very limited Thin layer Hard to pack	1.00 0.96	Very limited Depth to water	1.00
Sn: Sitcan-----	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.50	Very limited Depth to water	1.00
SR: Saruche-----	40	Very limited Slope Depth to bedrock	1.00 0.61	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Rombo-----	35	Very limited Slope Depth to bedrock	1.00 0.05	Somewhat limited Thin layer	0.74	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	



Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Sw: Molinaro-----	90	Somewhat limited Seepage Slope	0.70 0.68	Somewhat limited Piping	0.15	Very limited Depth to water	1.00
TbA: Trementina, warm----	90	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
TeE: Tecolote-----	90	Very limited Slope Seepage	1.00 1.00	Somewhat limited Large stones content Seepage	0.25 0.03	Very limited Depth to water	1.00
TF: Torreon, stony-----	50	Very limited Slope Seepage	1.00 0.05	Somewhat limited Hard to pack	0.35	Very limited Depth to water	1.00
Fuera-----	35	Very limited Slope	1.00	Somewhat limited Hard to pack	0.53	Very limited Depth to water	1.00
TgD: Trujillo-----	90	Somewhat limited Seepage Slope	0.95 0.68	Somewhat limited Seepage	0.03	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TgE: Trujillo-----	90	Very limited Slope Seepage	1.00 0.95	Somewhat limited Seepage	0.03	Very limited Depth to water	1.00
TL: Torreon, stony-----	55	Very limited Slope Seepage	1.00 0.05	Somewhat limited Hard to pack	0.35	Very limited Depth to water	1.00
Lorencito-----	35	Very limited Slope Depth to bedrock	1.00 0.84	Very limited Thin layer	1.00	Very limited Depth to water	1.00
TmD: Trujillo-----	90	Somewhat limited Seepage Slope	0.81 0.68	Somewhat limited Seepage	0.01	Very limited Depth to water	1.00
TnA: Trementina, cool----	90	Somewhat limited Seepage	0.04	Not limited		Very limited Depth to water	1.00
TnB: Trementina, dry-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.33	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
To: Torreon-----	85	Somewhat limited Seepage	0.05	Not limited		Very limited Depth to water	1.00
ToD: Torreon-----	85	Somewhat limited Slope Seepage	0.68 0.05	Somewhat limited Hard to pack	0.52	Very limited Depth to water	1.00
ToE: Torreon-----	50	Very limited Slope Seepage	1.00 0.05	Not limited		Very limited Depth to water	1.00
Torreon, stony-----	45	Very limited Slope Seepage	1.00 0.05	Somewhat limited Hard to pack	0.35	Very limited Depth to water	1.00
TsD: Travessilla-----	75	Very limited Depth to bedrock Slope	1.00 0.68	Very limited Thin layer Seepage	1.00 0.03	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Depth to bedrock Slope	1.00 0.68	Not rated		Not rated	

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
TsE: Torreon-----	90	Very limited Slope Seepage	1.00 0.05	Somewhat limited Hard to pack	0.35	Very limited Depth to water	1.00
TsF: Travessilla-----	50	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer Seepage	1.00 0.03	Very limited Depth to water	1.00
Rock outcrop-----	40	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	
Us: Aridic Calciustolls-	60	Very limited Slope Seepage Depth to bedrock	1.00 0.70 0.01	Somewhat limited Thin layer Piping	0.37 0.07	Very limited Depth to water	1.00
VB: Vona, overblown-----	85	Very limited Seepage	1.00	Not rated		Very limited Depth to water	1.00
VD: Dargol-----	40	Somewhat limited Depth to bedrock Slope	0.88 0.68	Somewhat limited Thin layer Hard to pack	0.88 0.29	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VD: Stout-----	25	Very limited Depth to bedrock Slope	1.00 0.08	Very limited Thin layer Seepage	1.00 0.03	Very limited Depth to water	1.00
Vamer-----	20	Very limited Depth to bedrock Slope	1.00 0.08	Very limited Thin layer Hard to pack	1.00 0.01	Very limited Depth to water	1.00
VnC: Vona-----	85	Very limited Seepage Slope	1.00 0.32	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
VoB: Vona-----	85	Very limited Seepage	1.00	Somewhat limited Seepage	0.09	Very limited Depth to water	1.00
VoC: Vonid-----	85	Very limited Seepage Slope	1.00 0.32	Somewhat limited Seepage	0.10	Very limited Depth to water	1.00
VT: Villedry-----	50	Somewhat limited Seepage Depth to bedrock Slope	0.70 0.56 0.08	Somewhat limited Thin layer Piping	0.56 0.01	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
VT: Travessilla-----	40	Very limited Depth to bedrock Slope	1.00 0.08	Very limited Thin layer Seepage	1.00 0.03	Very limited Depth to water	1.00
VtC: Valent-----	85	Very limited Seepage Slope	1.00 0.32	Somewhat limited Seepage	0.28	Very limited Depth to water	1.00
W: Water-----	100	Not rated		Not rated		Not rated	
Wa: Wapiti-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.05	Very limited Depth to water	1.00
WC: Plughat-----	43	Somewhat limited Seepage Depth to bedrock	0.72 0.16	Somewhat limited Thin layer	0.16	Very limited Depth to water	1.00
Villegreen-----	41	Somewhat limited Depth to bedrock Seepage	0.81 0.57	Somewhat limited Thin layer Piping	0.81 0.06	Very limited Depth to water	1.00
WeB: Wiley-----	85	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.17	Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WM: Minnequa-----	50	Somewhat limited Seepage Depth to bedrock	0.70 0.13	Somewhat limited Thin layer Piping	0.88 0.36	Very limited Depth to water	1.00
Wilid-----	35	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
WrB: Wilid-----	90	Somewhat limited Seepage	0.70	Somewhat limited Piping	0.18	Very limited Depth to water	1.00
WV: Almagre-----	45	Somewhat limited Seepage Depth to bedrock	0.70 0.10	Somewhat limited Thin layer Piping	0.11 0.08	Very limited Depth to water	1.00
Villedry-----	44	Somewhat limited Seepage Depth to bedrock	0.70 0.56	Somewhat limited Thin layer Piping	0.56 0.01	Very limited Depth to water	1.00
WyB: Wilid-----	85	Somewhat limited Seepage	0.70	Not limited		Very limited Depth to water	1.00
YaA: Yattle-----	90	Very limited Seepage	1.00	Not limited		Very limited Depth to water	1.00

Table 19.--Ponds and embankments--continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
YaC: Yattle-----	90	Very limited Seepage Slope	1.00 0.08	Not limited		Very limited Depth to water	1.00
ZR: Rizozo-----	75	Very limited Depth to bedrock Slope	1.00 1.00	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Depth to bedrock Slope	1.00 1.00	Not rated		Not rated	
ZRF: Rizozo-----	75	Very limited Slope Depth to bedrock	1.00 1.00	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Rock outcrop-----	15	Very limited Slope Depth to bedrock	1.00 1.00	Not rated		Not rated	



Table 20.--Engineering properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
AA:												
Ayon-----	0-6	Very cobbly loam	GC, SC	A-6, A-2-6	7-13	21-27	65-78	55-68	47-64	34-48	29-41	12-18
	6-14	Very cobbly loam, very gravelly loam	GC	A-6, A-2-6	0-6	30-37	55-78	43-68	36-61	26-46	28-41	12-18
	14-19	Very cobbly loam, very gravelly loam	SC, GC	A-6, A-2-6	0-9	26-40	70-80	39-64	34-62	25-47	28-41	12-18
	19-65	Very gravelly loam, very cobbly loam	GC	A-2-6	0-9	26-47	66-80	43-61	39-60	29-46	27-37	12-19
Apache-----	0-5	Cobbly loam	SC	A-6	0-7	8-23	79-91	69-81	54-74	38-55	27-45	9-18
	5-9	Cobbly clay loam, cobbly loam	CL	A-7-6, A-6	0-1	26-46	92-100	89-100	72-96	54-76	30-47	13-24
	9-15	Cobbly clay loam, cobbly loam	CL	A-7-6, A-6	8-15	17-30	92-100	87-100	70-96	53-76	30-47	13-24
	15-60	Bedrock			---	---	---	---	---	---	---	---
AC:												
Ayon-----	0-10	Very cobbly loam	GC, SC	A-2-6, A-6	15-23	22-27	62-81	49-76	42-71	31-54	29-41	12-18
	10-14	Very cobbly loam, very gravelly loam	GC	A-6, A-2-6	0-6	30-40	55-78	43-68	38-65	28-50	28-41	12-18
	14-32	Very cobbly loam, very gravelly loam	SC, GC	A-2-6, A-6	3-10	22-27	61-80	38-63	33-61	24-47	28-41	12-18
	32-60	Extremely gravelly loam, extremely cobbly loam	GC, GP-GC	A-2-6	0-5	11-16	43-49	14-28	12-27	9-20	27-37	12-19
Capulin-----	0-8	Loam	CL	A-6, A-7-6	0	0	100	100	84-93	61-70	29-43	12-18
	8-17	Clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	65-96	50-76	36-47	18-24
	17-32	Clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	63-93	48-73	36-47	18-24
	32-38	Loam, clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	59-94	44-74	30-45	13-25
	38-60	Gravelly loam	CL, GC, SC	A-6, A-2-6	0	0	70-83	48-74	40-68	29-51	27-38	12-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
AcC:												
Acantilado-----	0-4	Loam	CL	A-6, A-4	0	0	91-100	74-100	70-100	55-84	26-39	9-17
	4-15	Silt loam, loam	CL	A-6, A-4	0	0	91-100	74-100	70-100	65-97	26-37	9-17
	15-28	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	91-100	72-100	70-100	67-100	29-44	13-25
	28-39	Silt loam, silty clay loam	CL	A-6	0	0	91-100	72-100	70-100	65-100	29-40	13-21
	39-58	Silt loam, silty clay loam	CL	A-6	0	0	91-100	72-100	71-100	67-100	29-40	13-21
	58-62	Silt loam	CL	A-6	0	0	100	100	98-100	91-98	29-38	13-19
	62-70	Silt loam, loam	CL	A-6, A-4	0	0	100	100	94-100	87-99	24-38	9-19
AED:												
Dams, earthen dam-----	---	---	---	---	---	---	---	---	---	---	---	---
AnB:												
Ascalon-----	0-3	Sandy loam	SC-SM, SM	A-2-4, A-4	0	0	95-100	85-100	61-83	30-45	18-33	2-10
	3-7	Sandy loam	SC, SC-SM, SM	A-2-4, A-4	0	0	95-100	85-100	58-79	26-41	18-33	2-10
	7-14	Sandy clay loam	CL, SC	A-7-6, A-2-6	0	0	95-100	84-100	63-91	34-56	30-47	13-24
	14-23	Sandy clay loam	CL, SC	A-7-6, A-2-6	0	0	95-100	84-100	63-91	34-56	30-47	13-24
	23-30	Sandy clay loam	CL, SC	A-6, A-2-6	0	0	94-100	89-100	67-90	34-54	30-45	13-25
	30-65	Loam, fine sandy loam, sandy loam	SC, CL	A-4, A-6	0	0	92-100	75-100	61-91	42-66	20-32	6-13
Ap:												
Apache-----	0-5	Cobbly loam	SC	A-6	0-7	8-23	79-91	69-81	54-74	38-55	27-45	9-18
	5-9	Cobbly clay loam, cobbly loam	CL	A-7-6, A-6	0-1	26-46	92-100	89-100	72-96	54-76	30-47	13-24
	9-15	Cobbly clay loam, cobbly loam	CL	A-7-6, A-6	8-15	17-30	92-100	87-100	70-96	53-76	30-47	13-24
	15-60	Bedrock			---	---	---	---	---	---	---	---

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
AR:												
Calcidic												
Argiustolls----	0-8	Very stony clay loam	CL, SC	A-2-6, A-7-6	24-28	22-28	75-100	50-100	44-95	33-75	39-52	18-24
	8-10	Cobbly clay, very cobbly clay, gravelly clay	CH, GC	A-7-6	0-8	27-50	70-100	55-100	47-100	40-87	52-69	28-39
	10-20	Cobbly clay, very cobbly clay, gravelly clay	CH, CL, GC	A-7-6	0-8	27-50	70-100	55-100	47-100	40-87	49-66	28-40
	20-35	Cobbly clay loam, very cobbly clay loam, very cobbly clay	CL, GC	A-7-6, A-2-7	12-15	30-37	62-92	49-86	44-86	35-69	43-54	25-32
	35-60	Very cobbly clay loam	CL, GC, SC	A-2-6, A-6	7-14	28-37	75-86	50-77	44-73	33-57	35-44	18-25
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
AsB:												
Ascalon,												
overblown-----	0-15	Loamy sand, sandy loam	SM, SC-SM	A-2-4	0	0	95-100	85-100	50-65	27-39	0-29	NP-6
	15-30	Sandy clay loam	CL, SC	A-6	0	0	95-100	84-100	66-94	36-59	30-47	13-24
	30-40	Sandy clay loam	CL, SC	A-6	0	0	94-100	89-100	72-92	39-55	30-41	13-21
	40-49	Loam, fine sandy loam, sandy loam	SC-SM, SC	A-2-4, A-4	0	0	95-100	86-100	62-82	30-45	20-32	6-13
	49-65	Loam, fine sandy loam, sandy loam	SC-SM, SC	A-2-4, A-4	0	0	95-100	86-100	76-98	33-49	20-32	6-13

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
AV: Aguilar-----	0-4	Fine sandy loam	CL, SC-SM, SC	A-4	0	0	100	100	84-99	47-62	21-39	6-17
	4-10	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0	100	100	80-100	71-91	47-68	25-40
	10-14	Silty clay, silty clay loam, clay	CH, CL	A-7-6	0	0	100	100	89-100	80-100	47-66	25-40
	14-23	Silty clay, silty clay loam, clay	CL, CH	A-7-6	0	0	100	100	89-100	76-96	46-65	25-40
	23-29	Silty clay, clay, clay loam	CL, CH	A-7-6	0	0	100	100	93-100	78-98	46-65	25-40
	29-45	Clay loam, clay, silty clay loam	CH, CL	A-7-6, A-6	0	0	91-100	72-100	63-100	55-95	38-56	19-33
	45-65	Silty clay loam, clay, clay loam	CL	A-6, A-7-6	0	0	91-100	72-100	61-100	54-92	38-56	19-33
Beckton-----	0-3	Silt loam	CL	A-6	0	0	100	100	91-100	80-89	29-43	12-18
	3-13	Silty clay, silty clay loam, clay	CH, CL	A-7-6	0	0	100	100	95-100	84-99	47-64	25-36
	13-23	Silty clay, silty clay loam, clay	CH, CL	A-7-6	0	0	100	100	93-100	90-100	47-64	25-36
	23-36	Silty clay, clay	CH, CL	A-7-6	0	0	100	100	92-100	89-100	47-64	25-36
	36-52	Silty clay, clay	CL, CH	A-7-6	0	0	100	100	94-100	86-100	47-62	25-36
	52-59	Silty clay, silty clay loam	CL	A-7-6	0	0	100	100	95-100	84-99	47-62	25-36
	59-72	Stratified sandy loam to sandy clay loam	SC-SM, SC	A-2-6	0	0	100	100	75-91	35-51	18-35	4-16



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
AW: Wahatoya-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-3	Sandy loam	SC-SM, SC	A-2-4, A-6	0	0-3	86-100	78-100	59-85	30-48	21-35	6-13
	3-9	Fine sandy loam, sandy loam	SC-SM, SC	A-2-4, A-2-6	0	0-4	88-100	79-100	56-80	26-43	21-33	6-13
	9-21	Very cobbly sandy clay loam, very cobbly clay loam	GC, GC-GM	A-2-6, A-2-7	0-9	22-24	62-71	39-62	28-54	14-33	30-45	13-25
	21-31	Very cobbly sandy clay loam, very cobbly clay loam	GC-GM, GC	A-7-6, A-2-6	0-6	29-38	67-79	45-69	34-62	18-38	30-45	13-25
	31-36	Very cobbly sandy clay loam, very cobbly sandy loam	GC-GM, SC	A-2-4, A-2-6, A-7-6	0-6	29-39	62-79	45-69	35-64	18-38	24-41	9-21
	36-60	Bedrock			---	---	---	---	---	---	---	---
BaA: Baca-----	0-3	Silt loam	CL	A-6, A-4	0	0	100	100	88-100	73-85	27-41	9-19
	3-6	Silty clay loam	CL	A-6	0	0	100	100	87-99	75-87	27-41	9-19
	6-13	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0	100	100	89-99	85-95	44-58	25-32
	13-21	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0	100	100	93-100	88-98	44-58	25-32
	21-27	Silty clay loam, clay loam, clay	CL, CH	A-7-6	0	0	100	100	93-100	82-92	44-58	25-32
	27-37	Silty clay loam, clay loam, clay	CL, CH	A-7-6, A-6	0	0	100	100	89-100	79-100	32-58	13-32
	37-47	Loam, silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	87-100	76-91	29-44	13-25
	47-72	Loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	88-100	75-90	24-40	9-21

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
BaB: Bacid-----	0-5	Silt loam	CL	A-6, A-4	0	0	100	100	86-98	74-86	28-42	10-19
	5-13	Silty clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	89-100	78-93	41-58	21-32
	13-20	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0	100	100	93-100	82-97	47-62	25-36
	20-30	Silty clay loam, silty clay, clay	CL, CH	A-7-6	0	0	100	100	95-100	84-99	47-62	25-36
	30-60	Silty clay loam, silt loam	CL	A-6, A-4	0	0	100	100	86-100	74-89	26-41	10-21
BaC: Baca, cool-----	0-6	Silt loam	CL	A-6, A-4	0	0	100	100	86-98	74-86	27-41	9-19
	6-9	Silty clay loam, clay loam, clay	CL, CH	A-7-6	0	0	100	100	93-100	82-92	44-58	25-32
	9-25	Silty clay loam, clay loam, clay	CH, CL	A-7-6	0	0	100	100	87-97	69-79	44-58	25-32
	25-32	Silty clay loam, clay loam, clay	CL, CH	A-7-6	0	0	100	100	95-100	84-94	44-58	25-32
	32-45	Loam, silt loam, clay loam	CL	A-7-6, A-6	0	0	100	100	78-93	58-73	29-44	13-25
	45-60	Loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	81-96	58-73	24-40	9-21

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
BcA: Baca, cool-----	0-6	Silt loam	CL	A-6, A-4	0	0	100	100	86-98	74-86	27-41	9-19
	6-9	Silty clay loam, clay loam, clay	CL, CH	A-7-6	0	0	100	100	93-100	82-92	44-58	25-32
	9-25	Silty clay loam, clay loam, clay	CH, CL	A-7-6	0	0	100	100	87-97	69-79	44-58	25-32
	25-32	Silty clay loam, clay loam, clay	CL, CH	A-7-6	0	0	100	100	95-100	84-94	44-58	25-32
	32-45	Loam, silt loam, clay loam	CL	A-7-6, A-6	0	0	100	100	78-93	58-73	29-44	13-25
	45-60	Loam, silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	81-96	58-73	24-40	9-21
Bk: Fallriver-----	0-2	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-16	Extremely stony sandy loam	SC-SM, SC	A-1-a, A-2	31-38	24	48-60	28-46	21-40	10-22	20-31	4-12
	16-30	Very gravelly sandy loam	SC, SC-SM	A-2-4	0-1	14-23	59-67	35-58	25-48	12-26	18-30	4-12
	30-70	Very gravelly sandy loam, very gravelly loamy sand	SC-SM, SM	A-1-b	1-8	11-18	59-68	37-58	28-52	14-31	0-30	NP-12
BnA: Bacid-----	0-8	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	83-91	40-50	19-25
	8-15	Clay, silty clay	CH	A-7-6	0	0	100	100	94-100	90-100	50-61	29-36
	15-30	Silty clay loam, clay, silty clay	CL, CH	A-7-6	0	0	100	100	93-100	82-97	46-62	25-36
	30-60	Loam, silt loam	CL	A-6, A-4	0	0	100	100	83-95	59-71	26-39	10-19





Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
BwA:												
Bloom-----	0-8	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	96-100	92-99	39-47	19-25
	8-18	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	94-100	88-100	78-100	74-99	32-47	13-25
	18-45	Silty clay loam, silt loam, stratified loam	CL	A-7-6, A-6	0	0	94-100	88-100	78-100	74-99	32-47	13-25
	45-60	Silty clay loam, silt loam, stratified loam	CL	A-6, A-7-6	0	0	94-100	88-100	83-100	79-100	32-47	13-25
Bx:												
Boxcanyon-----	0-2	Silt loam	CL	A-6, A-7-6	0	0	100	100	89-98	77-86	29-43	12-18
	2-17	Silty clay loam, silty clay, clay	CL, CH	A-7-6	0	0	100	100	94-100	85-100	44-62	25-36
	17-27	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0	100	100	89-99	77-87	46-59	25-33
	27-33	Silty clay loam, silty clay, clay	CL, CH	A-7-6	0	0	100	100	94-100	86-96	44-58	25-32
	33-45	Loam, clay loam, silty clay loam	CL	A-6, A-7-6	0	0	98-100	94-100	81-100	60-78	29-45	13-25
	45-54	Fine gravelly loam, fine gravelly silt loam, fine gravelly sandy clay loam	SC	A-6, A-2-4	0	0	85-89	47-73	37-66	26-49	24-38	9-19
	54-60	Bedrock			---	---	---	---	---	---	---	---
CaD:												
Razor-----	0-2	Silty clay	CH	A-7-6	0	0	84-100	84-100	82-100	78-100	52-66	29-36
	2-10	Clay, silty clay	CH	A-7-6	0	0	84-100	84-100	72-100	62-94	51-70	29-44
	10-28	Clay, silty clay	CH	A-7-6	0	0	72-100	72-100	66-100	56-97	51-70	29-44
	28-40	Bedrock			---	---	---	---	---	---	---	---



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
Co: Collegiate-----	0-10	Loam	ML, CL-ML	A-4	0	0-1	87-100	77-100	66-94	46-68	28-46	7-13
	10-38	Loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0-1	94-100	91-100	79-97	32-45	25-39	6-13
	38-60	Very gravelly sand, very cobbly sand	GP, SP, GP-GM	A-1-a, A-1-b	0-6	13-18	52-68	37-60	27-48	2-6	0-20	NP-2
CpA: Calemore-----	0-9	Clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	79-87	40-50	19-25
	9-15	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	93-100	89-97	37-49	18-24
	15-22	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	91-99	36-47	18-24
	22-36	Silty clay loam, clay loam	CL	A-6, A-7-6	0	0	100	100	98-100	94-100	35-45	18-25
	36-41	Silt loam, loam	CL	A-6, A-7-6	0	0	100	100	96-100	92-100	29-44	13-25
	41-65	Loam, silt loam	CL	A-6, A-4	0	0	100	100	93-100	72-84	24-38	9-19
CpB: Calemore-----	0-7	Silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-99	29-41	12-19
	7-11	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	89-100	85-100	31-49	13-24
	11-20	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	100	92-100	88-98	34-47	17-24
	20-36	Silty clay loam, clay loam	CL	A-6, A-7-6	0	0	100	100	94-100	78-86	35-45	18-25
	36-42	Silty clay loam, clay loam	CL	A-6, A-7-6	0	0	100	100	98-100	94-100	35-44	18-25
	42-65	Loam, silt loam	CL	A-6, A-4	0	0	100	100	91-100	87-99	24-38	9-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
CpC:												
Capulin-----	0-8	Loam	CL	A-6, A-7-6	0	0	100	100	84-93	61-70	29-43	12-18
	8-17	Clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	65-96	50-76	36-47	18-24
	17-32	Clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	63-93	48-73	36-47	18-24
	32-38	Loam, clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	59-94	44-74	30-45	13-25
	38-60	Gravelly loam	CL, GC, SC	A-6, A-2-6	0	0	70-83	48-74	40-68	29-51	27-38	12-19
CpT:												
Capulin-----	0-8	Loam	CL	A-6, A-7-6	0	0	100	100	84-93	61-70	29-43	12-18
	8-17	Clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	65-96	50-76	36-47	18-24
	17-32	Clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	63-93	48-73	36-47	18-24
	32-38	Loam, clay loam	CL	A-7-6, A-6	0	0	91-100	74-100	59-94	44-74	30-45	13-25
	38-60	Gravelly loam	CL, GC, SC	A-6, A-2-6	0	0	70-83	48-74	40-68	29-51	27-38	12-19
Torreón-----	0-7	Clay loam	CL, CH	A-7-6	0	0-1	91-100	87-100	70-94	51-72	41-58	18-28
	7-10	Clay loam, clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	68-100	55-86	47-66	25-36
	10-29	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	58-95	47-81	46-68	25-40
	29-35	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0-1	5-18	93-94	91-92	69-88	55-74	46-68	25-40
	35-45	Cobbly clay loam, cobbly silty clay loam	CL, SC	A-7-6, A-6	0-3	12-30	77-88	71-84	59-79	45-62	39-50	21-29
	45-64	Cobbly clay loam, cobbly silty clay loam	CL, SC	A-7-6, A-6	0-3	12-30	77-88	71-84	61-80	47-63	39-50	21-29
Ct:												
Breece-----	0-7	Sandy loam	SC, SC-SM	A-2, A-4	0	0	85-100	80-100	50-70	25-40	26-37	7-12
	7-45	Sandy loam, coarse sandy loam	SC, SC-SM	A-2, A-4	0	0-5	85-100	80-100	45-70	20-40	22-35	6-12
	45-60	Coarse sandy loam, sandy loam	SM, SC, SC-SM	A-2, A-4	0	0-5	85-100	80-100	40-70	20-40	17-33	2-12

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
CwC:												
Cumulic												
Cryaquolls-----	0-2	Peat	PT	A-8	0	0	100	100	---	---	---	---
	2-10	Clay, clay loam	CH	A-7-6	0	0	100	100	90-100	75-95	51-70	25-36
	10-60	Clay, silty clay	CH	A-7-6	0	0	100	100	90-100	75-95	51-72	29-40
DaE:												
Dalero-----	0-5	Gravelly fine sandy loam	SC, SC-SM	A-2-4, A-6	0	0-7	69-84	54-75	44-72	19-36	18-33	2-12
	5-10	Gravelly loam, gravelly sandy loam	SC-SM, SC	A-2-4, A-6	0	0-7	69-84	54-75	41-67	27-48	17-31	2-12
	10-60	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
De:												
Davtone-----	0-16	Loam	CL	A-7-6	0	0	85-100	75-100	58-93	41-69	29-47	5-17
	16-23	Loam, sandy clay loam	SC, CL	A-6	0-8	0	87-100	82-100	67-89	36-52	31-43	13-18
	23-38	Cobbly sandy clay loam, gravelly clay loam	CL, SC	A-7-6, A-6	0-5	5-13	74-83	56-78	44-73	33-57	30-45	13-25
	38-64	Very gravelly loam	GC	A-6	9-17	9-17	59-75	34-58	27-53	20-40	24-38	9-19



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
DH:												
Davtone-----	0-19	Loam	ML	A-6	0	0	90-100	79-100	63-89	43-64	29-43	5-13
	19-30	Loam, sandy clay loam	SC, CL	A-6	0	0-4	80-100	71-100	62-100	36-66	31-47	13-24
	30-41	Cobbly sandy clay loam	SC, CL	A-6	0-4	17-30	84-94	73-90	59-86	33-54	30-45	13-25
	41-48	Gravelly sandy clay loam	SC	A-6	0-2	8-11	74-91	57-81	43-74	23-45	29-45	13-25
	48-72	Very gravelly sandy loam	SC, GC	A-2-4	0-6	14-19	60-67	35-59	27-49	15-27	24-32	9-13
Histic												
Cryaquolls-----	0-6	Peat	PT	A-8	0	0	100	100	69-79	32-42	0-0	NP
	6-10	Moderately decomposed plant material	PT	A-8	0	0	100	100	69-79	32-42	0-0	NP
	10-20	Cobbly sandy loam	SM	A-2-6	0-1	13-22	77-89	64-87	44-69	20-36	27-46	6-13
	20-29	Very cobbly sandy loam	SC, SC-SM	A-2-6	0-8	20-40	74-98	57-90	39-71	18-38	25-39	6-13
	29-60	Very cobbly sandy loam, very gravelly sandy loam	GC, GC-GM, SC, SC-SM	A-1, A-2-4	0-8	37-43	68-96	47-78	35-67	18-38	20-32	6-13
Dm:												
Demayo-----	0-5	Very cobbly clay loam	CL, GC	A-2-6, A-7-6	7-18	28-31	63-81	50-77	44-74	34-59	37-49	18-24
	5-12	Very cobbly clay loam, very gravelly clay loam	GC, CL	A-2-6, A-7-6	6	22-31	60-79	40-69	34-64	26-50	37-49	18-24
	12-22	Bedrock			---	---	---	---	---	---	---	---
Ds:												
Des Moines-----	0-4	Cobbly silt loam	ML	A-4	0-7	18-23	78-93	67-89	60-88	50-75	30-35	5-10
	4-18	Very cobbly silty clay loam	ML, SM	A-2-4, A-2-6	0-6	30-31	69-78	38-67	33-66	29-60	35-45	10-15
	18-36	Very stony silty clay, extremely stony clay	CL	A-6, A-7-6	30-38	15-19	70-86	55-86	52-86	50-86	40-50	20-25
	36-48	Extremely stony sandy clay loam	SP-SM, GC, SC-SM	A-1, A-6, A- 2-4	43-52	18-21	60-83	20-67	16-63	9-39	25-35	5-15



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
Ds: Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
Dt: Davtone-----	0-19	Loam	ML	A-6	0	0	90-100	79-100	63-89	43-64	29-43	5-13
	19-30	Loam, sandy clay loam	SC, CL	A-6	0	0-4	80-100	71-100	62-100	36-66	31-47	13-24
	30-41	Cobbly sandy clay loam	SC, CL	A-6	0-4	17-30	84-94	73-90	59-86	33-54	30-45	13-25
	41-48	Gravelly sandy clay loam	SC	A-6	0-2	8-11	74-91	57-81	43-74	23-45	29-45	13-25
	48-72	Very gravelly sandy loam	SC, GC	A-2-4	0-6	14-19	60-67	35-59	27-49	15-27	24-32	9-13
Dv: Feterita-----	0-3	Silt loam	CL	A-7-6, A-6	0	0	100	100	88-97	75-84	33-47	12-19
	3-8	Silty clay, silty clay loam, clay	CL, CH	A-7-6	0	0	100	100	96-100	92-100	47-66	24-36
	8-21	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0	100	100	92-100	87-100	46-64	25-36
	21-35	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0	100	100	93-100	88-100	46-64	25-36
	35-72	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	92-100	80-88	37-47	19-25
Ec: Eguaje-----	0-5	Cobbly clay loam	CL	A-7-6	3-9	16-22	78-93	69-91	61-87	47-69	37-49	18-24
	5-14	Very cobbly clay loam, very cobbly clay	CH, SC	A-7-6	0-6	23-31	69-80	38-60	35-60	28-54	44-62	25-36
	14-19	Very gravelly clay loam, very gravelly clay	GC	A-2-7, A-7-6	4-7	10-19	57-73	32-55	28-55	23-48	42-57	24-36
	19-28	Very gravelly clay loam, very gravelly clay	GC	A-2-7, A-7-6	0-6	15-26	63-73	35-55	32-55	26-49	42-57	24-36
	28-60	Very cobbly clay loam, very cobbly loam	GC	A-7-6, A-2-6	0-6	30-32	59-78	39-68	31-64	23-50	29-44	13-25

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
Ec:												
Demayo-----	0-5	Very cobbly clay loam	CL, GC	A-2-6, A-7-6	7-18	28-31	63-81	50-77	44-74	34-59	37-49	18-24
	5-12	Very cobbly clay loam, very gravelly clay loam	GC, CL	A-2-6, A-7-6	6	22-31	60-79	40-69	34-64	26-50	37-49	18-24
	12-22	Bedrock			---	---	---	---	---	---	---	---
EL:												
Ellicott-----	0-7	Fine sandy loam	SC-SM, CL-ML	A-4, A-6	0	0	100	100	89-100	39-51	18-33	3-12
	7-14	Loamy fine sand, fine sandy loam	SM, SC-SM	A-4, A-2-4	0	0	95-100	85-100	75-100	32-51	16-31	2-12
	14-21	Loamy coarse sand	SM, SC-SM	A-2-4, A-1-b	0	0	95-100	85-100	49-67	20-34	0-24	NP-6
	21-31	Stratified fine sandy loam to loamy fine sand	SM, SC-SM	A-2-4	0	0	95-100	85-100	71-96	29-47	0-28	NP-10
	31-40	Sand	SP-SM	A-3	0	0	95-100	85-100	64-77	5-8	0-14	NP
	40-62	Very gravelly sand, very gravelly coarse sand	SW, SP	A-1-a, A-1-b	0	0-6	64-72	29-51	22-40	2-4	0-14	NP
Las Animas-----	0-3	Loam	CL	A-6, A-4	0	0	100	100	84-94	60-70	26-39	9-17
	3-11	Fine sandy loam	SC-SM, SC	A-4, A-2-4	0	0	100	100	83-96	34-47	17-31	2-12
	11-23	Stratified sandy loam to fine sandy loam	SC, SC-SM, SM	A-2-6, A-2-4	0	0	100	100	67-80	30-43	17-31	2-12
	23-26	Silt loam	CL-ML, ML	A-4	0	0	100	100	83-96	65-78	17-31	2-12
	26-36	Loamy sand	SC-SM, SM	A-2-4	0	0	92-100	75-100	56-86	14-31	0-28	NP-10
	36-65	Sand, loamy fine sand	SM, SP-SM	A-2-4, A-3	0	0	91-100	77-100	56-81	4-13	0-20	NP-4

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
ES:												
Embargo-----	0-7	Cobbly silt loam	ML	A-4	0-10	15-25	75-90	70-85	65-85	50-75	30-35	5-10
	7-14	Very cobbly silt loam	SC, GC, CL	A-4	0-10	35-70	45-90	40-85	35-85	30-75	30-35	5-10
	14-20	Very cobbly clay loam	CL, GC, SC	A-6	0-10	35-50	45-90	40-85	35-85	30-70	35-40	15-20
	20-25	Extremely cobbly clay, extremely cobbly clay loam	GC, GP-GC, GW-GC	A-7-6	0-10	50-75	20-80	15-75	15-75	10-70	35-50	15-25
	25-60	Bedrock			---	---	---	---	---	---	---	---
Schwacheim-----	0-5	Gravelly silt loam	GM, ML	A-4	0-5	0-10	60-80	55-75	50-75	40-70	30-35	5-10
	5-9	Very gravelly loam, very gravelly silt loam	GM	A-2, A-4	0-10	10-20	35-55	30-50	25-50	25-45	30-35	5-10
	9-14	Extremely gravelly clay loam, extremely gravelly silt loam, extremely gravelly silty clay loam	GM, GW-GM	A-2-4	0-10	10-20	15-30	10-25	10-25	5-25	30-45	5-15
	14-18	Bedrock			---	---	---	---	---	---	---	---
FCB:												
Wapiti-----	0-6	Clay loam	CL	A-7-6, A-6	0	0	100	100	85-93	65-73	39-51	19-25
	6-14	Sandy clay loam, clay loam	CL	A-6, A-7-6	0	0	95-100	84-100	65-92	48-73	31-46	14-25
	14-26	Sandy clay loam, clay loam	CL	A-6, A-7-6	0	0	95-100	84-100	66-94	49-74	31-46	14-25
	26-34	Sandy clay loam, clay loam	CL	A-6, A-7-6	0	0	95-100	84-100	68-96	52-77	31-46	14-25
	34-43	Loam, clay loam, fine sandy loam	SC, CL	A-6	0	0	92-100	75-100	63-94	47-72	29-40	13-21
	43-67	Loam, fine sandy loam	CL-ML, SC, CL	A-4, A-6	0	0	92-100	75-100	59-94	42-71	22-38	7-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
FcC: Fort-----	0-7	Loam	SC-SM	A-6	0	0	100	100	82-91	60-69	29-41	12-19
	7-21	Clay loam	CL	A-6	0	0	95-100	84-100	65-91	35-55	32-46	15-25
	21-35	Loam, clay loam	CL	A-6, A-7-6	0	0	95-100	84-100	72-94	55-74	37-46	19-25
	35-40	Loam, silt loam	CL	A-6	0	0	95-100	84-100	83-100	67-89	29-39	12-19
	40-65	Loam, sandy loam, fine sandy loam	SC-SM, SC	A-6	0	0	92-100	75-100	62-95	44-71	24-38	9-19
FcD: Fort-----	0-4	Sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	73-81	37-45	24-35	7-13
	4-7	Loam	CL	A-6	0	0	95-100	84-100	70-93	52-71	29-39	12-19
	7-13	Loam, clay loam	CL	A-6, A-7-6	0	0	95-100	84-100	68-98	51-78	29-46	12-25
	13-28	Loam, clay loam	CL	A-7-6, A-6	0	0	95-100	84-100	68-99	50-77	29-46	12-25
	28-60	Loam, sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-6	0	0	92-100	75-100	66-100	27-51	22-38	7-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
Fp: Fishers-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-5	Very cobbly loam	SC	A-6	0-6	21-25	62-81	43-62	38-59	28-45	31-45	13-18
	5-9	Very cobbly loam	SC	A-6	0-6	21-24	64-81	36-62	32-59	24-45	31-45	13-18
	9-14	Very cobbly fine sandy loam, very cobbly loam, very cobbly silt loam	SC	A-2-4	0-6	22-26	64-71	36-62	29-56	20-41	26-39	9-19
	14-19	Very gravelly clay loam, very gravelly clay	SC	A-7-6	0-6	14-18	58-69	33-56	30-56	25-50	43-59	25-36
	19-36	Very gravelly clay loam, very gravelly clay	SC	A-7-6	0-6	7-20	58-67	33-51	29-51	23-44	43-59	25-36
	36-47	Very gravelly clay loam, very gravelly clay	SC	A-7-6	0-6	7-18	58-67	33-51	30-51	25-46	43-59	25-36
	47-60	Very cobbly sandy clay loam, very cobbly clay loam	SC	A-6	0-6	29-33	60-79	40-69	34-69	26-56	33-49	17-28
FtC: Olnest-----	0-3	Loam	CL-ML, CL	A-4	0	0	100	100	86-91	60-65	24-32	7-11
	3-10	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	100	82-94	45-57	30-43	13-22
	10-21	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	100	81-93	44-56	30-43	13-22
	21-38	Fine sandy loam, sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	100	71-81	35-45	20-33	6-13
	38-72	Fine sandy loam, sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	100	71-81	35-45	20-33	6-13

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
FuD: Bandarito-----	0-3	Clay loam	CL	A-7-6	0	0	100	100	88-96	68-76	41-54	18-24
	3-12	Silty clay loam, silty clay	CL	A-7-6	0	0	100	100	97-100	93-100	47-62	24-32
	12-18	Clay, silty clay	CH	A-7-6	0	0	100	100	98-100	94-100	51-66	29-36
	18-29	Clay, silty clay	CH	A-7-6	0	0	100	100	97-100	93-100	51-64	29-36
	29-35	Clay, silty clay	CH	A-7-6	0	0	96-100	90-100	76-95	64-81	51-64	29-36
	35-40	Clay, silty clay	CH	A-7-6	0	0	96-100	90-100	73-91	61-77	51-64	29-36
	40-56	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	87-100	72-100	67-100	63-97	45-58	25-33
	56-66	Clay loam, silty clay loam	CL	A-7-6	0	0	86-100	73-100	64-98	50-78	39-51	21-29
FuE: Bandarito-----	0-3	Clay loam	CL	A-7-6	0	0	100	100	88-96	68-76	41-54	18-24
	3-12	Silty clay loam, silty clay	CL	A-7-6	0	0	100	100	97-100	93-100	47-62	24-32
	12-18	Clay, silty clay	CH	A-7-6	0	0	100	100	98-100	94-100	51-66	29-36
	18-29	Clay, silty clay	CH	A-7-6	0	0	100	100	97-100	93-100	51-64	29-36
	29-35	Clay, silty clay	CH	A-7-6	0	0	96-100	90-100	76-95	64-81	51-64	29-36
	35-40	Clay, silty clay	CH	A-7-6	0	0	96-100	90-100	73-91	61-77	51-64	29-36
	40-56	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	87-100	72-100	67-100	63-97	45-58	25-33
	56-66	Clay loam, silty clay loam	CL	A-7-6	0	0	86-100	73-100	64-98	50-78	39-51	21-29

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
FW:												
Bandarito-----	0-3	Clay loam	CL	A-7-6	0	0	100	100	88-96	68-76	41-54	18-24
	3-12	Silty clay loam, silty clay	CL	A-7-6	0	0	100	100	97-100	93-100	47-62	24-32
	12-18	Clay, silty clay	CH	A-7-6	0	0	100	100	98-100	94-100	51-66	29-36
	18-29	Clay, silty clay	CH	A-7-6	0	0	100	100	97-100	93-100	51-64	29-36
	29-35	Clay, silty clay	CH	A-7-6	0	0	96-100	90-100	76-95	64-81	51-64	29-36
	35-40	Clay, silty clay	CH	A-7-6	0	0	96-100	90-100	73-91	61-77	51-64	29-36
	40-56	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	87-100	72-100	67-100	63-97	45-58	25-33
	56-66	Clay loam, silty clay loam	CL	A-7-6	0	0	86-100	73-100	64-98	50-78	39-51	21-29
Fishers-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-5	Very cobbly loam	SC	A-6	0-6	21-25	62-81	43-62	38-59	28-45	31-45	13-18
	5-9	Very cobbly loam	SC	A-6	0-6	21-24	64-81	36-62	32-59	24-45	31-45	13-18
	9-14	Very cobbly fine sandy loam, very cobbly loam, very cobbly silt loam	SC	A-2-4	0-6	22-26	64-71	36-62	29-56	20-41	26-39	9-19
	14-19	Very gravelly clay loam, very gravelly clay	SC	A-7-6	0-6	14-18	58-69	33-56	30-56	25-50	43-59	25-36
	19-36	Very gravelly clay loam, very gravelly clay	SC	A-7-6	0-6	7-20	58-67	33-51	29-51	23-44	43-59	25-36
	36-47	Very gravelly clay loam, very gravelly clay	SC	A-7-6	0-6	7-18	58-67	33-51	30-51	25-46	43-59	25-36
	47-60	Very cobbly sandy clay loam, very cobbly clay loam	SC	A-6	0-6	29-33	60-79	40-69	34-69	26-56	33-49	17-28

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
FyB: Furia-----	0-4	Clay loam	CH, CL	A-7-6	0	0	100	100	90-100	70-80	45-62	21-28
	4-16	Silty clay loam, clay loam	CH	A-7-5	0	0	96-100	90-100	83-97	67-80	50-62	24-28
	16-32	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	96-100	90-100	88-100	84-100	47-69	24-35
	32-43	Silty clay loam, silty clay	CH	A-7-6	0	0	96-100	90-100	82-100	77-100	47-69	24-35
	43-72	Silty clay loam, clay loam	CH, CL	A-7-6	0	0	96-100	90-100	75-93	57-73	41-58	21-28
GA: Gulnare-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-5	Loam	SC-SM, SC	A-4	0-3	5-11	94-100	88-100	72-91	49-65	21-33	6-13
	5-13	Gravelly clay loam, gravelly sandy clay loam	CL, SC	A-6	0-1	0-13	74-83	57-74	47-72	36-58	30-45	13-25
	13-18	Gravelly clay loam, gravelly sandy clay loam	CL, SC	A-2-6, A-7-6	0-1	0-13	74-83	57-74	48-74	28-55	30-45	13-25
	18-19	Bedrock			---	---	---	---	---	---	---	---
	19-60	Bedrock			---	---	---	---	---	---	---	---



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
GA:												
Allens Park-----	0-5	Sandy loam	SC-SM, SM	A-4	0	0	100	100	56-80	23-42	17-33	2-13
	5-10	Sandy loam	SC-SM, SC	A-2-6	0	0-8	86-100	70-100	48-79	22-42	21-33	6-13
	10-16	Sandy clay loam	SC	A-7-6	0	0-1	87-100	78-100	57-88	29-53	29-44	13-25
	16-20	Sandy clay loam	SC	A-6	0	0-1	87-100	78-100	63-96	35-60	29-44	13-25
	20-24	Sandy clay loam, gravelly sandy clay loam	SC	A-2-6	0	0-7	69-100	35-100	30-100	17-65	29-44	13-25
	24-26	Bedrock			---	---	---	---	---	---	---	---
	26-60	Bedrock			---	---	---	---	---	---	---	---
GC:												
Groomer-----	0-10	Loam	CL	A-6	0-1	0-1	87-96	77-91	67-85	50-65	35-47	13-18
	10-21	Cobbly clay loam	CL	A-7-6	0	16-33	85-92	69-88	63-84	50-69	45-55	25-28
	21-39	Clay, gravelly clay	CH	A-7-6	0	0	82-100	72-100	65-100	53-83	49-62	29-36
	39-50	Clay, gravelly clay	CH	A-7-6	0	0-12	76-96	51-90	47-90	39-77	49-61	29-37
	50-66	Gravelly silty clay loam, gravelly clay loam	CL	A-7-6	0	0	66-80	46-72	44-72	42-70	43-50	25-29
Cucharas-----	0-10	Clay loam	CL	A-6	0	0	100	100	80-100	70-80	30-40	10-20
	10-26	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	40-60	20-35
	26-32	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	40-60	20-35
	32-42	Bedrock			---	---	---	---	---	---	---	---
GgB:												
Glenberg-----	0-5	Fine sandy loam	CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	91-100	42-52	21-35	6-13
	5-9	Fine sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	90-100	41-51	21-33	6-13
	9-60	Stratified loamy fine sand to loam	SC, SC-SM, SM	A-4	0	0	92-100	75-100	60-92	19-38	16-31	2-12

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
GmE: Aquic Dystrocryepts--	0-11	Cobbly loam	SM, CL-ML, SC-SM	A-4	0-29	17-29	69-90	43-90	36-83	25-61	25-52	6-13
	11-20	Gravelly loam, gravelly sandy loam, very gravelly loam	CL-ML, SC, SC-SM, CL	A-4, A-2	0-9	5-17	53-82	37-79	31-73	21-53	22-37	6-13
	20-34	Gravelly loam, gravelly sandy loam, very gravelly loam	SC, SC-SM	A-1, A-2, A-4	0-6	0-9	51-84	14-84	11-78	8-57	20-35	6-13
	34-60	Very gravelly loam, very gravelly sandy loam, extremely gravelly loam	GC-GM, GC	A-1, A-2, A-4	0-7	13-17	50-69	31-69	25-66	17-48	16-32	2-13
Gn: Angostura-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-12	Very stony loam	SC, SC-SM	A-6	18-33	18-33	63-79	50-69	40-62	27-44	21-33	6-13
	12-24	Very cobbly loam	SC, GC	A-6	2-12	21-31	56-74	45-64	38-62	28-46	24-36	9-17
	24-46	Very cobbly clay loam, very cobbly sandy clay loam	GC	A-2-6	0-6	29-32	60-79	40-69	32-62	24-48	29-40	13-21
	46-61	Very cobbly clay loam, very cobbly sandy clay loam	GC	A-2-6	7-12	22-25	60-79	40-69	33-64	25-49	29-40	13-21
	61-72	Very gravelly loam, very gravelly sandy clay loam	SC, GC	A-2-6	9-18	13-18	58-73	33-59	29-56	21-43	29-40	13-21
GP: Pits, gravel----	0-72	Extremely gravelly sand	GW	A-1	0-30	0-35	15-30	10-25	5-15	0-5	---	NP

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
GR:												
Gulnare-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-5	Loam	SC-SM, SC	A-4	0-3	5-11	94-100	88-100	72-91	49-65	21-33	6-13
	5-13	Gravelly clay loam, gravelly sandy clay loam	CL, SC	A-6	0-1	0-13	74-83	57-74	47-72	36-58	30-45	13-25
	13-18	Gravelly clay loam, gravelly sandy clay loam	CL, SC	A-2-6, A-7-6	0-1	0-13	74-83	57-74	48-74	28-55	30-45	13-25
	18-19	Bedrock			---	---	---	---	---	---	---	---
	19-60	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
Hn:												
Hoehne-----	0-3	Fine sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	90-98	40-48	21-33	6-12
	3-14	Loamy fine sand, fine sandy loam	SC-SM, SC	A-2-4, A-6	0	0	95-100	85-100	78-100	23-40	16-31	2-12
	14-34	Fine sandy loam	SC-SM, SM	A-4, A-2-4	0	0	95-100	85-100	73-99	31-50	16-31	2-12
	34-44	Stratified fine sandy loam to loamy fine sand	SM, SC-SM	A-4, A-2-6	0	0	95-100	85-100	75-100	32-51	16-31	2-12
	44-60	Stratified loamy sand to fine sandy loam	SM, SC-SM	A-4, A-2-6	0	0	95-100	85-100	75-100	32-51	16-31	2-12
HvA:												
Haversid-----	0-14	Silt loam	CL	A-6, A-7-6	0	0	100	100	89-98	75-84	30-42	12-19
	14-32	Loam	CL	A-6, A-7-6	0	0	100	100	84-93	61-70	30-42	12-19
	32-53	Stratified loam to clay loam	CL	A-6, A-7-6	0	0	85-100	80-100	70-100	50-80	30-47	12-25
	53-72	Stratified fine sandy loam to loam	CL, SC	A-2-4, A-6	0	0	85-100	80-100	55-95	35-75	26-40	10-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
HyD:												
Humbar Springs---	0-7	Gravelly loam	CL, GC	A-6, A-7-6	0-1	0-10	68-83	55-74	47-70	34-53	31-45	11-18
	7-10	Gravelly loam	CL, GC, SC	A-6, A-7-6	0-1	0-10	68-83	55-74	46-69	34-52	29-43	12-18
	10-22	Gravelly sandy clay loam	SC, GC	A-2-6, A-7-6	0-1	0-10	68-83	55-74	45-66	25-38	30-41	13-19
	22-35	Gravelly loamy sand, gravelly sand	SP-SM	A-1-b, A-2-4	0-1	0-5	70-84	55-76	41-62	3-10	0-22	NP-4
	35-66	Gravelly fine sand, gravelly loamy fine sand	SM	A-1-b, A-2-4	0-1	0-6	71-84	56-76	50-75	17-29	0-21	NP-4
K2D:												
Kimera-----	0-4	Loam	CL	A-6, A-7-6	0	0	100	100	86-95	62-71	30-42	12-19
	4-11	Loam, clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	86-96	65-75	32-42	13-21
	11-38	Clay loam, loam	CL, SC	A-7-6, A-6	0	0	92-100	75-100	64-95	46-71	32-42	13-21
	38-60	Loam	CL, SC	A-4, A-6	0	0	92-100	75-100	60-92	44-70	27-40	10-19
Chicosa-----	0-6	Very cobbly loam	SC	A-6	7-18	22-31	75-83	50-69	43-64	31-48	30-42	12-19
	6-16	Very gravelly loam	SC	A-2-6	0-6	7-18	62-71	33-52	28-48	21-36	31-39	13-19
	16-28	Extremely gravelly sandy loam, very gravelly loam	SC	A-2-6	0-6	0-12	62-71	32-50	27-46	20-35	27-37	12-18
	28-42	Very gravelly sandy loam, very gravelly loam	SP-SC, SC-SM	A-2-6, A-1-b	0-6	0-12	62-71	32-50	25-43	12-24	18-29	4-12
	42-60	Extremely gravelly coarse sand, extremely gravelly loamy sand	GP	A-1-a	0-3	0-13	43-50	18-27	8-14	2-4	0-19	NP-3

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
KI:												
Kandrix-----	0-6	Loam	CL	A-6, A-7-6	0	0	95-100	82-100	72-96	53-74	28-41	12-19
	6-15	Loam, clay loam	CL	A-6, A-7-6	0	0	95-100	82-100	71-96	53-75	30-41	13-21
	15-33	Loam, clay loam	CL	A-6, A-7-6	0	0	90-100	74-100	65-100	49-81	29-44	13-25
	33-60	Loam	CL	A-6, A-4	0	0	90-100	74-100	60-91	44-70	24-36	9-17
Chicosa-----	0-6	Gravelly loam	CL, SC	A-6	0	0-15	74-83	57-74	49-70	35-53	30-42	12-19
	6-14	Very gravelly loam, very gravelly clay loam, very channery loam	GC	A-2-6	0-6	7-14	62-68	31-52	26-50	20-38	30-41	13-21
	14-19	Extremely gravelly sandy loam, extremely gravelly loam	SC, GC	A-2-6	0-5	16-18	51-62	15-32	10-25	4-13	18-29	4-12
	19-29	Extremely gravelly sandy loam, extremely gravelly loam	GC, GW-GC	A-2-4, A-2-6	0-5	18-23	49-55	12-32	8-26	4-14	18-29	4-12
	29-70	Extremely gravelly loamy sand, extremely gravelly loamy coarse sand	GW-GM	A-1-a	0-5	16-18	44-48	16-33	12-27	4-11	0-19	NP-3
Km:												
Kimera-----	0-6	Loam	CL	A-6, A-7-6	0	0	100	100	84-93	60-69	30-42	12-19
	6-19	Loam, clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	85-95	64-74	32-42	13-21
	19-24	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	92-100	75-100	61-97	44-73	32-47	13-25
	24-50	Loam, silt loam, clay loam	CL, SC	A-6, A-7-6	0	0	92-100	75-100	63-94	47-72	32-42	13-21
	50-65	Loam, fine sandy loam, silt loam	CL, SC	A-4, A-6	0	0	92-100	75-100	61-94	45-72	27-40	10-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
KmC:												
Wilid-----	0-6	Silt loam	CL	A-6, A-7-6	0	0	100	100	90-100	83-95	28-42	10-19
	6-10	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	94-100	90-98	37-47	19-25
	10-30	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	93-100	89-97	37-47	19-25
	30-44	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	98-100	94-100	37-47	19-25
	44-60	Silt loam	CL	A-6	0	0	100	100	93-100	87-96	29-39	12-19
Kimera-----	0-4	Loam	CL	A-6, A-7-6	0	0	100	100	85-94	61-70	30-42	12-19
	4-15	Loam, clay loam	CL	A-6, A-7-6	0	0	100	100	87-97	67-77	32-42	13-21
	15-28	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	85-100	68-100	56-97	40-74	32-47	13-25
	28-47	Loam, sandy clay loam, clay loam	CL, SC	A-6, A-7-6	0	0	85-100	68-100	55-96	39-73	31-46	13-25
	47-57	Loam, silt loam	CL	A-6, A-7-6	0	0	84-100	65-100	60-100	52-90	31-41	13-21
	57-65	Loam, fine sandy loam	CL, SC	A-4, A-6	0	0	85-100	68-100	55-94	41-73	26-39	10-19
KO:												
Kimera-----	0-6	Fine sandy loam	SC	A-6, A-4	0	0	100	100	91-96	40-45	27-36	10-14
	6-21	Loam, clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	85-95	64-74	32-42	13-21
	21-40	Loam, clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	83-93	63-73	32-42	13-21
	40-60	Loam, fine sandy loam	CL, SC	A-4, A-6	0	0	85-100	68-100	55-93	39-70	26-39	10-19
Oterodry-----	0-11	Fine sandy loam	CL-ML, SM, SC, SC-SM	A-4, A-6	0	0	100	100	86-99	39-52	17-33	2-12
	11-25	Fine sandy loam, sandy loam	CL-ML, SM, SC-SM, SC	A-2-4, A-4	0	0	100	89-100	75-97	33-50	16-31	2-12
	25-60	Fine sandy loam, sandy loam	CL-ML, SM, SC, SC-SM	A-2-4, A-4	0	0	100	89-100	77-99	35-52	16-31	2-12

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
Kw:												
Kandrix-----	0-4	Loam	CL	A-6, A-7-6	0	0	96-100	82-100	72-96	53-74	31-41	12-19
	4-12	Loam, clay loam	CL	A-6, A-7-6	0	0	95-100	82-100	72-98	55-77	32-42	13-21
	12-28	Loam, clay loam	CL, SC	A-6, A-7-6	0	0	89-100	74-100	64-96	48-75	32-42	13-21
	28-36	Loam, sandy clay loam	CL	A-6	0	0	100	100	87-97	53-63	30-40	13-21
	36-66	Fine sandy loam, loam	SC, CL	A-4, A-6	0	0	90-100	76-100	66-98	39-61	25-35	9-16
KwC:												
Kandrix-----	0-6	Loam	CL	A-6, A-7-6	0	0	96-100	82-100	72-96	53-74	29-41	12-19
	6-14	Loam, sandy clay loam	CL	A-6, A-7-6	0	0	95-100	82-100	69-94	52-73	30-41	13-21
	14-26	Loam, clay loam	CL, SC	A-6, A-7-6	0	0	89-100	74-100	64-100	48-80	30-45	13-25
	26-42	Loam, silt loam, clay loam	CL	A-6, A-7-6	0	0	100	100	91-100	79-94	30-45	13-25
	42-51	Loam, clay loam, sandy clay loam	CL	A-6	0	0	100	100	88-98	66-76	29-40	13-21
	51-65	Loam, clay loam, sandy clay loam	CL, SC	A-6, A-4	0	0	100	100	80-92	41-53	24-38	9-19
Wiley-----	0-4	Silt loam	CL	A-6	0	0	100	100	93-100	86-98	27-41	9-19
	4-9	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	9-15	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	15-26	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	26-35	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	94-100	89-100	29-45	13-25
	35-44	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	96-100	91-100	29-45	13-25
	44-72	Silt loam	CL	A-6	0	0	100	100	95-100	90-99	27-38	12-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
La: Lanola-----	0-7	Channery loam, channery silt loam	CL, GC	A-6, A-7-6	0	0-9	71-84	52-74	42-69	30-51	29-45	9-18
	7-12	Channery loam, channery silt loam	CL, GC	A-6, A-7-6	0	0-10	60-80	55-75	50-75	35-60	28-43	12-21
	12-40	Bedrock			---	---	---	---	---	---	---	---
Lb: La Brier-----	0-5	Silty clay loam	CL	A-7-6	0-4	0-6	100	100	96-100	84-92	41-54	18-24
	5-11	Silty clay loam, silty clay	CH, CL	A-7-6	0	0-6	100	100	100	95-100	47-66	25-36
	11-21	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	92-100	87-100	47-66	25-36
	21-36	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	93-100	88-100	44-62	25-36
	36-46	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0-5	86-94	76-90	66-90	58-81	29-45	13-25
	46-72	Silt loam	CL	A-6, A-7-6	0	0-5	86-94	76-90	69-90	59-83	29-44	13-25
Ld: Leadville-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-16	Cobbly sandy loam	SC	A-2-4	1-8	8-17	77-91	67-84	49-69	24-38	20-33	6-13
	16-22	Very cobbly sandy loam	SC-SM, SC	A-1, A-2-6	0-6	21-24	56-73	38-64	26-50	12-26	20-32	6-13
	22-48	Very cobbly sandy clay loam, very cobbly clay loam	GC, SC	A-2-6	0-6	36-51	71-81	57-77	43-69	23-43	29-44	13-25
	48-65	Very cobbly sandy clay loam	GC, SC	A-2-6	1-6	37-43	63-85	50-81	39-71	21-41	29-40	13-21



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
LG:												
Manzanst-----	0-3	Silty clay loam	CH, CL	A-7-6, A-6	0	0	100	100	98-100	87-100	39-53	19-29
	3-6	Silty clay, clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	97-100	93-100	46-62	25-36
	6-20	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	92-100	87-100	46-62	25-36
	20-28	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	91-100	86-100	46-62	25-36
	28-40	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	91-100	73-100	65-99	58-89	39-50	21-29
	40-65	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	91-100	73-100	66-100	59-90	39-50	21-29
Ritoazul-----	0-3	Silty clay	CH, CL	A-7-6	0	0	100	100	92-100	87-97	45-58	25-32
	3-18	Clay, silty clay	CH	A-7-6	0	0	100	100	96-100	93-100	50-66	29-40
	18-29	Clay, silty clay	CH	A-7-6	0	0	100	100	91-100	88-100	50-66	29-40
	29-33	Silty clay, clay	CH, CL	A-7-6	0	0	100	100	88-100	83-98	45-61	25-37
	33-36	Silty clay, silty clay loam, clay loam	CL	A-7-6	0	0	100	100	95-100	91-100	43-59	25-36
	36-60	Bedrock			---	---	---	---	---	---	---	---
LH:												
Leadville-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-16	Cobbly sandy loam	SC	A-2-4	1-8	8-17	77-91	67-84	49-69	24-38	20-33	6-13
	16-22	Very cobbly sandy loam	SC-SM, SC	A-1, A-2-6	0-6	21-24	56-73	38-64	26-50	12-26	20-32	6-13
	22-48	Very cobbly sandy clay loam, very cobbly clay loam	GC, SC	A-2-6	0-6	36-51	71-81	57-77	43-69	23-43	29-44	13-25
	48-65	Very cobbly sandy clay loam	GC, SC	A-2-6	1-6	37-43	63-85	50-81	39-71	21-41	29-40	13-21

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
LH: Howlett-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-14	Cobbly sandy loam	SC, SC-SM	A-2-6	0-7	13-21	80-89	70-87	48-69	22-36	20-33	6-13
	14-23	Gravelly sandy clay loam	GC, SC	A-6	0-5	6-14	72-81	61-80	52-80	30-52	29-44	13-25
	23-47	Gravelly clay loam, gravelly sandy clay loam	SC, GC	A-2-6	0-5	0-8	70-84	57-84	45-78	24-49	29-44	13-25
	47-65	Very cobbly sandy clay loam	GC, SC, SC-SM	A-2-4	0-8	36-42	69-83	48-79	41-78	23-50	25-30	5-10
Lo: La Brier-----	0-5	Silty clay loam	CL	A-7-6	0-4	0-6	100	100	96-100	84-92	41-54	18-24
	5-11	Silty clay loam, silty clay	CH, CL	A-7-6	0	0-6	100	100	100	95-100	47-66	25-36
	11-21	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	92-100	87-100	47-66	25-36
	21-36	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	93-100	88-100	44-62	25-36
	36-46	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0-5	86-94	76-90	66-90	58-81	29-45	13-25
	46-72	Silt loam	CL	A-6, A-7-6	0	0-5	86-94	76-90	69-90	59-83	29-44	13-25
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
LoA: Limon-----	0-6	Silty clay loam	CL	A-7-6	0	0	100	100	94-100	84-94	41-52	21-29
	6-20	Silty clay, clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	95-100	91-100	45-69	25-44
	20-60	Silty clay, clay, silty clay loam	CH, CL	A-7-6	0	0	100	100	90-100	86-100	45-69	25-44



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
<b>Ls:</b>												
Las Animas-----	0-3	Loam	CL	A-6, A-4	0	0	100	100	84-94	60-70	26-39	9-17
	3-11	Fine sandy loam	SC-SM, SC	A-4, A-2-4	0	0	100	100	83-96	34-47	17-31	2-12
	11-23	Stratified sandy loam to fine sandy loam	SC, SC-SM, SM	A-2-6, A-2-4	0	0	100	100	67-80	30-43	17-31	2-12
	23-26	Silt loam	CL-ML, ML	A-4	0	0	100	100	83-96	65-78	17-31	2-12
	26-36	Loamy sand	SC-SM, SM	A-2-4	0	0	92-100	75-100	56-86	14-31	0-28	NP-10
	36-65	Sand, loamy fine sand	SM, SP-SM	A-2-4, A-3	0	0	91-100	77-100	56-81	4-13	0-20	NP-4
<b>LST:</b>												
Lorencito-----	0-4	Channery clay loam	CL, CH	A-7-6	0	0-1	62-83	49-74	44-70	35-57	44-53	25-29
	4-16	Parachannery clay, parachannery clay loam	CH, CL	A-7-6	0	0-10	100	100	88-100	73-98	45-70	25-44
	16-26	Bedrock			---	---	---	---	---	---	---	---
Sarcillo-----	0-5	Loam	CL	A-6	0	0	90-100	74-100	64-100	47-79	26-43	9-21
	5-8	Clay loam, clay, silty clay	CL	A-7-6	0-1	0-1	89-100	76-100	70-100	57-84	45-57	25-33
	8-13	Silty clay, clay	CH	A-7-6	0-1	0-1	87-100	76-100	68-100	56-83	49-61	29-37
	13-16	Silty clay, clay	CH	A-7-6	0-1	0-1	87-100	76-100	69-100	57-85	49-61	29-37
	16-60	Bedrock			---	---	---	---	---	---	---	---

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
LST: Trujillo-----	0-9	Loam	CL, SC	A-4, A-7-6	0	0-1	89-100	77-100	67-97	49-74	29-43	9-17
	9-13	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0-1	88-100	77-100	65-100	48-79	29-47	12-24
	13-20	Clay loam, loam, sandy clay loam	CL, SC	A-7-6, A-6	0	0-1	88-100	75-100	62-98	47-78	30-46	13-24
	20-36	Clay loam, loam, sandy clay loam	SC, CL	A-6, A-7-6	0	0-1	88-100	74-100	60-96	33-60	30-45	13-25
	36-58	Sandy clay loam, fine sandy loam, sandy loam	SC, CL	A-6, A-4	0	0-1	91-94	83-91	76-91	38-52	26-39	9-19
	58-70	Sandy clay loam, fine sandy loam, sandy loam	SC, CL	A-6, A-2-4	0-1	0-1	89-96	77-91	70-91	34-52	26-39	9-19
Lt: Littlepine-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-3	Fine sandy loam	SC-SM, SC	A-4	0	0	100	92-100	66-81	32-45	25-39	6-13
	3-6	Sandy loam, fine sandy loam	SC-SM, SC	A-6, A-4	0	0	100	94-100	82-97	36-48	21-35	6-13
	6-16	Clay loam, sandy clay loam	CL, SC	A-7-6	0	0	100	94-100	70-89	36-53	29-45	13-25
	16-30	Sandy clay loam, clay loam	CL, SC	A-7-6	0	0	91-100	74-100	53-87	27-52	31-47	13-25
	30-48	Sandy clay loam, clay loam	CL, SC	A-7-6	0	0	91-100	74-100	59-94	44-74	31-47	13-25
	48-66	Sandy clay loam, sandy loam	CL, SC	A-6	0	0	91-100	74-100	59-92	30-53	26-39	10-19
	66-72	Sandy loam, coarse sandy loam	SC-SM, SC	A-6, A-2-4, A-1-b	0	0-1	90-100	76-100	50-79	21-41	18-32	3-13

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
LvD:												
Lorencito-----	0-8	Clay loam	CL	A-7-6	0	0	93-100	82-100	71-97	55-77	40-53	21-29
	8-18	Clay, silty clay	CL, CH	A-7-6	0	0	89-100	76-100	71-100	67-100	45-61	25-37
	18-28	Bedrock			---	---	---	---	---	---	---	---
LW:												
Littlepine-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-3	Fine sandy loam	SC-SM, SC	A-4	0	0	100	92-100	66-81	32-45	25-39	6-13
	3-6	Sandy loam, fine sandy loam	SC-SM, SC	A-6, A-4	0	0	100	94-100	82-97	36-48	21-35	6-13
	6-16	Clay loam, sandy clay loam	CL, SC	A-7-6	0	0	100	94-100	70-89	36-53	29-45	13-25
	16-30	Sandy clay loam, clay loam	CL, SC	A-7-6	0	0	91-100	74-100	53-87	27-52	31-47	13-25
	30-48	Sandy clay loam, clay loam	CL, SC	A-7-6	0	0	91-100	74-100	59-94	44-74	31-47	13-25
	48-66	Sandy clay loam, sandy loam	CL, SC	A-6	0	0	91-100	74-100	59-92	30-53	26-39	10-19
	66-72	Sandy loam, coarse sandy loam	SC-SM, SC	A-6, A-2-4, A-1-b	0	0-1	90-100	76-100	50-79	21-41	18-32	3-13

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
LW: Wahatoya-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-3	Sandy loam	SC-SM, SC	A-2-4, A-6	0	0-3	86-100	78-100	59-85	30-48	21-35	6-13
	3-9	Fine sandy loam, sandy loam	SC-SM, SC	A-2-4, A-2-6	0	0-4	88-100	79-100	56-80	26-43	21-33	6-13
	9-21	Very cobbly sandy clay loam, very cobbly clay loam	GC, GC-GM	A-2-6, A-2-7	0-9	22-24	62-71	39-62	28-54	14-33	30-45	13-25
	21-31	Very cobbly sandy clay loam, very cobbly clay loam	GC-GM, GC	A-7-6, A-2-6	0-6	29-38	67-79	45-69	34-62	18-38	30-45	13-25
	31-36	Very cobbly sandy clay loam, very cobbly sandy loam	GC-GM, SC	A-2-4, A-2-6, A-7-6	0-6	29-39	62-79	45-69	35-64	18-38	24-41	9-21
	36-60	Bedrock			---	---	---	---	---	---	---	---
MaB: Mauricanyon, warm-----	0-4	Loam	CL	A-6, A-7-6	0	0	98-100	96-100	79-94	56-70	31-47	9-18
	4-26	Loam	CL	A-6, A-7-6	0	0	98-100	96-100	82-94	59-70	31-45	11-18
	26-40	Loam, silt loam	CL	A-6, A-7-6	0	0	98-100	96-100	81-91	59-68	31-43	13-18
	40-68	Loam, silt loam	SC, CL	A-6, A-7-6	0	0	92-100	75-100	62-92	45-69	29-43	12-18
MaW: Mauricanyon, wet	0-6	Clay loam	CL, MH	A-7-6	0	0	98-100	96-100	80-92	62-72	43-55	18-25
	6-12	Clay loam	CL	A-7-6	0	0	98-100	96-100	78-95	60-76	41-58	19-28
	12-23	Clay loam	CL	A-7-6	0	0	98-100	96-100	82-93	63-73	39-51	19-25
	23-34	Sandy clay loam, loam	SC, CL	A-6, A-2-6	0	0	92-100	75-100	61-91	33-53	29-43	12-18
	34-44	Loam, silt loam	CL	A-6, A-7-6	0	0	92-100	75-100	67-99	58-87	29-43	12-18
	44-65	Loam, silt loam	CL	A-6, A-7-6	0	0	92-100	75-100	67-99	58-87	29-43	12-18

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
MD: Dumps, mine-----	0-60	Variable			---	---	---	---	---	---	0-14	---
Mf: Moran-----	0-6	Very cobbly fine sandy loam	CL-ML, SC, GC-GM	A-4	5-25	30-60	70-90	65-85	50-80	40-65	25-30	5-10
	6-17	Very gravelly fine sandy loam	GC, GC-GM	A-2	5-25	5-20	35-55	30-50	20-40	15-25	25-30	5-10
	17-30	Very cobbly sandy loam	GC, GC-GM	A-1, A-2	5-20	30-60	60-80	55-75	30-50	15-30	25-30	5-10
	30-40	Very cobbly sandy loam	SC-SM, SM, GC-GM	A-1, A-2	5-25	30-60	60-80	55-75	30-50	15-30	20-25	NP-5
	40-60	Extremely cobbly sandy loam, extremely cobbly coarse sandy loam	GC-GM, GM, SC-SM, SM	A-1, A-2	5-25	35-70	60-80	55-75	30-50	10-30	20-25	NP-5
MG: Tercio-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-10	Cobbly loam	CL	A-6	0-2	17-22	90-94	64-90	54-83	39-63	28-39	12-19
	10-16	Cobbly clay loam, very cobbly clay loam, cobbly silty clay loam	SC, CL	A-7-6	0-6	16-41	75-90	63-80	51-75	38-59	37-50	19-29
	16-30	Cobbly clay, gravelly clay	CL, CH	A-7-6	0-3	5-12	73-81	55-77	45-74	38-65	48-63	28-40
	30-38	Cobbly clay, gravelly clay	CH, CL	A-7-6	0-4	11-32	79-93	72-93	66-93	55-86	48-63	28-40
	38-60	Cobbly clay loam, cobbly clay, gravelly clay	CL, CH	A-7-6	0-2	13-30	78-90	72-86	65-86	53-81	42-61	24-39





Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
MI:												
Minqwet-----	0-6	Silt loam	CL	A-6	0	0	96-100	90-100	88-100	82-99	30-41	13-19
	6-14	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	96-100	90-100	82-100	78-100	29-44	13-25
	14-21	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	96-100	90-100	81-100	77-100	29-44	13-25
	21-30	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	96-100	90-100	79-100	75-99	29-44	13-25
	30-45	Bedrock			---	---	---	---	---	---	---	---
Wiley-----	0-4	Silt loam	CL	A-6	0	0	100	100	93-100	86-98	27-41	9-19
	4-9	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	9-15	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	15-26	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	26-35	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	94-100	89-100	29-45	13-25
	35-44	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	96-100	91-100	29-45	13-25
	44-72	Silt loam	CL	A-6	0	0	100	100	95-100	90-99	27-38	12-19
MIK:												
Midway-----	0-4	Clay loam	CL, CH	A-7-6	0	0	100	100	91-96	73-78	45-54	25-29
	4-10	Clay, clay loam, silty clay	CL, CH	A-7-6	0	0	94-100	88-100	82-100	78-100	46-61	25-37
	10-18	Clay, clay loam, silty clay	CL, CH	A-7-6	0	0	94-100	88-100	80-100	76-100	46-61	25-37
	18-39	Bedrock			---	---	---	---	---	---	---	---

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
MIK: Chicosa-----	0-6	Gravelly loam	SC, CL	A-6	0-7	0-8	74-83	57-74	48-70	35-53	30-42	12-19
	6-20	Very gravelly loam, very gravelly clay loam, very channery loam	GC	A-2-6	0-6	6-12	62-68	31-52	26-49	19-38	30-41	13-21
	20-37	Extremely gravelly sandy loam, extremely gravelly loam	SP-SC, SC	A-1, A-2	0-5	11	52-64	18-35	13-29	6-15	18-29	4-12
	37-72	Extremely gravelly loamy sand, extremely gravelly loamy coarse sand	GW-GM	A-1	0-5	11	46-52	19-31	14-25	5-10	0-19	NP-3
MnA: Manzanst-----	0-3	Silty clay loam	CH, CL	A-7-6, A-6	0	0	100	100	98-100	87-100	39-53	19-29
	3-6	Silty clay, clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	97-100	93-100	46-62	25-36
	6-20	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	92-100	87-100	46-62	25-36
	20-28	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	91-100	86-100	46-62	25-36
	28-40	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	91-100	73-100	65-99	58-89	39-50	21-29
	40-65	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	91-100	73-100	66-100	59-90	39-50	21-29

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
MnB: Manzanst-----	0-3	Silty clay loam	CH, CL	A-7-6, A-6	0	0	100	100	98-100	87-100	39-53	19-29
	3-6	Silty clay, clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	97-100	93-100	46-62	25-36
	6-20	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	92-100	87-100	46-62	25-36
	20-28	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	91-100	86-100	46-62	25-36
	28-40	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	91-100	73-100	65-99	58-89	39-50	21-29
	40-65	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	91-100	73-100	66-100	59-90	39-50	21-29
MnW: Aquic Haplustalfs----	0-3	Silty clay loam	CH, CL	A-7-6, A-6	0	0	100	100	98-100	87-100	39-53	19-29
	3-6	Silty clay, clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	97-100	93-100	45-61	24-34
	6-18	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	92-100	87-100	46-62	25-36
	18-30	Silty clay, clay, silty clay loam, clay loam	CH	A-7-6	0	0	100	100	91-100	86-100	46-62	25-36
	30-36	Clay loam, silty clay loam, sandy clay loam	CL	A-7-6, A-6	0	0	91-100	73-100	63-94	48-74	36-45	18-23
	36-66	Fine sandy loam, silt loam, loam	CL, SC	A-6, A-4	0	0	91-100	73-100	60-94	43-71	26-38	9-17



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
MP:												
Razor-----	0-5	Silty clay loam	CH, CL	A-6, A-7-6	0	0	100	100	85-98	74-87	38-54	19-29
	5-15	Silty clay loam, clay, silty clay	CH, CL	A-7-6	0	0	100	100	92-100	88-100	47-70	25-44
	15-21	Silty clay loam, clay, silty clay	CH, CL	A-7-6	0	0	100	100	89-100	85-100	47-70	25-44
	21-29	Silty clay loam, clay, silty clay	CH, CL	A-7-6	0	0	89-100	72-100	68-100	66-100	46-69	25-44
	29-60	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
MR:												
Mirror-----	0-10	Extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-4	26-33	39-51	54-63	39-50	32-46	22-33	27-44	6-12
	10-25	Extremely cobbly loam, extremely cobbly sandy loam	GC-GM, GM, SC-SM, SM	A-2-4	19-23	25-39	55-66	40-54	33-50	23-36	21-35	6-12
	25-60	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
MvC:												
Manvel-----	0-4	Silt loam	CL	A-4, A-6	0	0	100	94-100	87-100	81-98	27-42	10-19
	4-12	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	94-100	86-100	81-100	29-47	12-25
	12-60	Silt loam, silty clay loam	CL	A-6, A-7-6	0	0	100	94-100	86-100	81-100	29-47	12-25

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
MyD:												
Midway-----	0-3	Clay loam	CH, CL	A-7-6	0	0	100	100	90-95	72-77	45-54	25-29
	3-8	Clay, clay loam, silty clay	CH, CL	A-7-6	0	0	94-100	88-100	81-100	77-100	46-61	25-37
	8-14	Clay, clay loam, silty clay	CL, CH	A-7-6	0	0	94-100	88-100	79-100	75-100	46-61	25-37
	14-24	Bedrock			---	---	---	---	---	---	---	---
MzA:												
Manzanola-----	0-3	Silty clay loam	CL, CH	A-6, A-7-6	0	0	100	100	92-100	81-94	40-56	19-29
	3-10	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	92-100	87-100	45-62	25-36
	10-16	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	92-100	87-100	45-62	25-36
	16-27	Silty clay, silty clay loam	CL, CH	A-7-6	0	0	100	100	92-100	87-100	45-62	25-36
	27-32	Clay loam, silty clay loam	CL	A-6, A-7-6	0	0	91-100	72-100	72-100	64-98	40-51	21-29
	32-38	Clay loam, silty clay loam	CL	A-6, A-7-6	0	0	91-100	72-100	72-100	63-97	40-51	21-29
	38-67	Clay loam, silty clay loam	CL	A-6, A-7-6	0	0	91-100	72-100	65-100	57-98	31-51	14-29

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
MzB: Manzanola-----	0-5	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	92-100	81-94	38-54	19-29
	5-17	Silty clay loam, clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	92-100	88-100	45-62	25-36
	17-30	Silty clay loam, clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	92-100	88-100	47-62	25-36
	30-50	Clay loam, silty clay loam	CL	A-7-6	0	0	91-100	72-100	68-100	61-94	41-52	21-29
	50-70	Clay loam, silty clay loam	CL	A-7-6, A-6	0	0	91-100	72-100	68-100	61-94	40-51	21-29
NM: Nopurg-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-12	Cobbly sandy loam	SC, SC-SM	A-2-6	1-7	11-21	80-91	70-87	48-69	22-36	21-33	6-13
	12-24	Very cobbly sandy clay loam	SC, GC	A-2-6	0-6	29-37	67-79	45-69	38-69	23-45	29-44	13-25
	24-35	Very cobbly sandy clay, very cobbly clay	SC, GC	A-2-7, A-7	0-6	30-46	62-78	49-68	41-67	26-45	43-59	25-36
	35-72	Very cobbly sandy clay, very cobbly clay	CH, GC	A-7-6	0-6	37-52	71-81	56-76	48-76	38-63	43-59	25-36



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
NM: Mitotes-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-15	Sandy loam	SC, SC-SM	A-2-4	0-3	0-3	84-91	81-89	57-73	27-39	21-33	6-13
	15-21	Gravelly sandy clay loam, cobbly sandy clay loam	CL, SC	A-6	0-7	11-22	79-88	69-84	59-84	35-56	30-45	13-25
	21-32	Cobbly clay, cobbly sandy clay, cobbly clay loam	CL, GC, SC	A-7-6	0-7	17-23	79-90	69-90	59-90	38-63	43-59	25-36
	32-51	Cobbly clay, cobbly sandy clay, cobbly clay loam	CL	A-7-6	0-15	17-23	88-90	77-90	69-90	56-78	43-59	25-36
	51-72	Stony sandy loam, cobbly sandy loam	SC, SC-SM	A-2-6	16-22	4-9	83-96	73-96	48-74	20-38	18-32	4-13
OeC: Otero-----	0-3	Sandy loam	SC, SC-SM	A-4, A-2-4	0	0	90-100	75-100	54-82	26-45	21-35	6-13
	3-10	Sandy loam	SC, SC-SM	A-4, A-2-4	0	0	90-100	75-100	54-81	26-44	21-35	6-13
	10-19	Sandy loam, fine sandy loam	SM, SC-SM	A-1-b, A-6	0	0	90-100	75-100	48-77	20-40	16-30	2-12
	19-30	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	92-100	75-100	51-80	23-44	16-30	2-12
	30-40	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	92-100	75-100	62-95	26-48	16-30	2-12
	40-65	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	92-100	75-100	52-81	24-45	16-30	2-12

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
OtD: Oterodry-----	0-11	Fine sandy loam	CL-ML, SM, SC, SC-SM	A-4, A-6	0	0	100	100	86-99	39-52	17-33	2-12
	11-25	Fine sandy loam, sandy loam	CL-ML, SM, SC-SM, SC	A-2-4, A-4	0	0	100	89-100	75-97	33-50	16-31	2-12
	25-60	Fine sandy loam, sandy loam	CL-ML, SM, SC, SC-SM	A-2-4, A-4	0	0	100	89-100	77-99	35-52	16-31	2-12
OyB: Olnest-----	0-4	Sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	75-80	38-43	24-32	7-11
	4-14	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	100	82-94	45-57	30-43	13-22
	14-20	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	100	81-93	44-56	30-43	13-22
	20-28	Sandy clay loam, sandy loam	SC, SC-SM	A-7-6, A-4	0	0	100	100	74-92	39-57	22-41	7-21
	28-48	Sandy clay loam, sandy loam	SC, SC-SM	A-7-6, A-4	0	0	100	100	74-92	39-57	22-41	7-21
	48-60	Very fine sandy loam, loam, fine sandy loam	CL, CL-ML	A-6, A-4	0	0	100	100	94-100	62-70	22-32	7-13
OyC: Olnest-----	0-4	Sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	75-80	38-43	24-32	7-11
	4-14	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	100	82-94	45-57	30-43	13-22
	14-20	Sandy clay loam	CL, SC	A-6, A-7-6	0	0	100	100	81-93	44-56	30-43	13-22
	20-28	Sandy clay loam, sandy loam	SC, SC-SM	A-7-6, A-4	0	0	100	100	74-92	39-57	22-41	7-21
	28-48	Sandy clay loam, sandy loam	SC, SC-SM	A-7-6, A-4	0	0	100	100	74-92	39-57	22-41	7-21
	48-60	Very fine sandy loam, loam, fine sandy loam	CL, CL-ML	A-6, A-4	0	0	100	100	94-100	62-70	22-32	7-13



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
PM:												
Minnequa-----	0-4	Silt loam	CL	A-7-6	0	0	96-100	90-100	83-100	76-94	30-42	12-19
	4-14	Silty clay loam, silt loam	CL	A-7-6	0	0	96-100	90-100	79-100	74-99	29-46	12-25
	14-24	Silty clay loam, silt loam	CL	A-7-6	0	0	96-100	90-100	81-100	75-100	29-46	12-25
	24-29	Bedrock			---	---	---	---	---	---	---	---
	29-60	Bedrock			---	---	---	---	---	---	---	---
PnD:												
Penrose, moist--	0-4	Loam	CL, SC	A-6	0	0	91-100	74-100	64-98	46-74	26-39	9-19
	4-10	Channery loam, channery silt loam	SC, CL	A-6	0	0	76-84	53-73	45-69	33-52	27-39	12-19
	10-60	Bedrock			---	---	---	---	---	---	---	---
RaB:												
Ravine-----	0-3	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	98-100	87-95	38-50	19-25
	3-14	Silty clay loam, clay, silty clay	CL, CH	A-7-6	0	0	100	100	93-100	82-100	47-70	25-44
	14-21	Clay, silty clay	CH	A-7-6	0	0	100	100	95-100	91-100	51-70	29-44
	21-28	Silty clay, clay	CH	A-7-6	0	0	89-100	72-100	66-100	64-100	50-69	29-44
	28-60	Bedrock			---	---	---	---	---	---	---	---
RaC:												
Ritoazul-----	0-3	Silty clay	CH, CL	A-7-6	0	0	100	100	92-100	87-97	45-58	25-32
	3-18	Clay, silty clay	CH	A-7-6	0	0	100	100	96-100	93-100	50-66	29-40
	18-29	Clay, silty clay	CH	A-7-6	0	0	100	100	91-100	88-100	50-66	29-40
	29-33	Silty clay, clay	CH, CL	A-7-6	0	0	100	100	88-100	83-98	45-61	25-37
	33-36	Silty clay, silty clay loam, clay loam	CL	A-7-6	0	0	100	100	95-100	91-100	43-59	25-36
	36-60	Bedrock			---	---	---	---	---	---	---	---



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
Rc: Raku-----	0-8	Silt loam	CL	A-6, A-7-6	0	0	100	100	92-99	78-85	31-43	13-18
	8-11	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	97-100	93-100	46-64	25-36
	11-22	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	100	92-100	87-100	46-64	25-36
	22-28	Silty clay loam, silty clay	CH, CL	A-7-6	0	0	100	100	88-100	83-98	46-62	25-36
	28-45	Silty clay loam, silty clay	CL, CH	A-7-6	0	0	100	100	95-100	83-98	44-60	25-36
	45-68	Silt loam, silty clay loam, clay loam	CL	A-7-6, A-6	0	0	100	100	77-94	57-74	30-47	12-25
RcA: Raku-----	0-3	Silty clay loam	CL	A-7-6	0	0	100	100	92-100	82-90	39-51	19-25
	3-11	Clay, silty clay	CH	A-7-6	0	0	100	100	90-100	74-84	51-66	29-36
	11-18	Clay, silty clay	CH	A-7-6	0	0	100	100	84-94	72-82	50-64	29-36
	18-34	Clay, silty clay	CH	A-7-6	0	0	100	100	85-95	73-83	50-62	29-36
	34-41	Clay, silty clay	CH	A-7-6	0	0	100	100	92-100	74-84	50-62	29-36
	41-48	Silt loam, silty clay loam, clay loam	CL	A-6, A-7-6	0	0	100	100	77-94	57-74	30-47	12-25
	48-66	Silt loam, silty clay loam, clay loam	CL	A-7-6, A-6	0	0	100	100	90-100	78-95	30-47	12-25
Rd: Romound-----	0-4	Silt loam	CL	A-6, A-4	0	0	100	100	93-100	79-91	27-42	10-19
	4-14	Loam, silt loam	CL	A-6	0	0	100	92-100	76-91	56-69	30-40	12-19
	14-24	Loam, silt loam	CL	A-6, A-4	0	0	95-100	84-100	71-100	49-78	18-37	2-17
	24-30	Loam, fine sandy loam	CL	A-6, A-4	0	0	95-100	84-100	71-100	49-78	18-37	2-17
	30-60	Bedrock			---	---	---	---	---	---	---	---



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
Sc:												
Schwacheim-----	0-5	Gravelly silt loam	GM, ML	A-4	0-5	0-10	60-80	55-75	50-75	40-70	30-35	5-10
	5-9	Very gravelly loam, very gravelly silt loam	GM	A-2, A-4	0-10	10-20	35-55	30-50	25-50	25-45	30-35	5-10
	9-14	Extremely gravelly clay loam, extremely gravelly silt loam, extremely gravelly silty clay loam	GM, GW-GM	A-2-4	0-10	10-20	15-30	10-25	10-25	5-25	30-45	5-15
	14-18	Bedrock			---	---	---	---	---	---	---	---
ScR:												
Schwacheim-----	0-5	Gravelly silt loam	GM, ML	A-4	0-5	0-10	60-80	55-75	50-75	40-70	30-35	5-10
	5-9	Very gravelly loam, very gravelly silt loam	GM	A-2, A-4	0-10	10-20	35-55	30-50	25-50	25-45	30-35	5-10
	9-14	Extremely gravelly clay loam, extremely gravelly silt loam, extremely gravelly silty clay loam	GM, GW-GM	A-2-4	0-10	10-20	15-30	10-25	10-25	5-25	30-45	5-15
	14-18	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
SG:												
Ovmesa-----	0-2	Loam	CL, CL-ML	A-6, A-4	0	0	94-100	89-100	73-92	52-69	24-36	6-14
	2-9	Fine sandy loam, loam	CL-ML, SC, SC-SM	A-4, A-2-4	0	0	85-100	68-100	59-96	28-50	20-30	6-12
	9-14	Bedrock			---	---	---	---	---	---	---	---
	14-40	Bedrock			---	---	---	---	---	---	---	---





Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
SL:												
Leadville-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	2-16	Cobbly sandy loam	SC	A-2-4	1-8	8-17	77-91	67-84	49-69	24-38	20-33	6-13
	16-22	Very cobbly sandy loam	SC-SM, SC	A-1, A-2-6	0-6	21-24	56-73	38-64	26-50	12-26	20-32	6-13
	22-48	Very cobbly sandy clay loam, very cobbly clay loam	GC, SC	A-2-6	0-6	36-51	71-81	57-77	43-69	23-43	29-44	13-25
	48-65	Very cobbly sandy clay loam	GC, SC	A-2-6	1-6	37-43	63-85	50-81	39-71	21-41	29-40	13-21
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
SM:												
Schamber-----	0-4	Gravelly sandy loam	SC, SC-SM	A-2-4, A-2-6	0	0-7	69-84	54-75	39-62	19-34	22-35	6-13
	4-12	Very gravelly loam, very gravelly sandy loam	GC-GM, GC, SC	A-2-4, A-2-6	0	0-12	51-67	29-49	21-40	10-21	18-29	4-12
	12-60	Extremely gravelly loamy sand	GP-GM	A-1-a	0	17-22	41-49	26-34	19-28	5-10	0-21	NP-6
Midway-----	0-3	Clay loam	CH, CL	A-7-6	0	0	100	100	90-95	72-77	45-54	25-29
	3-8	Clay, clay loam, silty clay	CH, CL	A-7-6	0	0	94-100	88-100	81-100	77-100	46-61	25-37
	8-14	Clay, clay loam, silty clay	CL, CH	A-7-6	0	0	94-100	88-100	79-100	75-100	46-61	25-37
	14-24	Bedrock			---	---	---	---	---	---	---	---



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
Sw:												
Molinaro-----	0-17	Loam	CL, SC	A-7-6, A-6	0	0	88-100	74-100	60-91	44-68	33-47	11-18
	17-31	Loam	CL, SC	A-6, A-7-6	0	0	88-100	74-100	61-92	44-69	31-45	11-18
	31-41	Loam, clay loam	CL, SC	A-7-6, A-6	0	0	88-100	74-100	61-93	46-72	31-45	13-21
	41-66	Loam, clay loam	CL, SC	A-7-6, A-6	0	0	88-100	74-100	61-95	45-72	28-43	12-21
TbA:												
Trementina, warm	0-8	Silt loam	ML	A-6	0	0	100	100	98-100	91-98	35-49	13-19
	8-14	Silt loam	ML	A-7-6, A-6	0	0	100	100	94-100	84-91	37-49	13-19
	14-21	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	85-93	41-53	19-25
	21-29	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	86-100	75-90	32-49	13-25
	29-39	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	85-100	79-94	32-49	13-25
	39-50	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	88-100	79-94	32-49	13-25
	50-72	Silt loam, silty clay loam	CL	A-7-6, A-4	0	0	100	100	84-99	75-90	27-45	10-21
TeE:												
Tecolote-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-5	Very cobbly sandy loam	SC, SC-SM	A-2-4, A-2-6	6	21-36	68-80	46-70	32-58	14-32	18-35	2-13
	5-15	Very cobbly fine sandy loam, very cobbly sandy loam	SC, SC-SM	A-1-b, A-2-6	0-6	28-45	64-80	52-70	37-61	18-34	17-33	2-13
	15-25	Very cobbly sandy loam, very cobbly sandy clay loam	SP-SM, SC	A-2-6, A-1-a	0-6	21-38	68-73	46-64	30-54	12-30	17-37	2-17
	25-60	Very cobbly sandy clay loam	SC	A-2-6, A-2-7	0-6	22-31	60-81	40-62	30-56	16-34	29-44	13-25

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
TF: Torreon, stony--	0-7	Stony clay loam	CL	A-7-6	13-22	12-19	87-100	82-100	71-94	54-74	41-54	18-24
	7-11	Clay loam, clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	71-100	58-90	47-66	25-36
	11-29	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	65-99	52-82	46-64	25-36
	29-37	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0-1	5-18	93-94	91-92	80-92	65-79	46-64	25-36
	37-60	Cobbly clay loam, cobbly silty clay loam	CL, SC	A-7-6, A-6	0-3	12-30	77-88	71-84	59-79	45-62	39-50	21-29
Fuera-----	0-2	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	0-14	NP
	2-7	Cobbly loam	CL, SC	A-6	0-7	12-22	79-90	69-84	57-78	42-59	28-39	12-19
	7-10	Cobbly clay loam, cobbly loam	CL	A-6	0-3	18-33	82-94	72-90	61-90	45-75	31-50	13-29
	10-11	Cobbly clay loam, cobbly loam	CL	A-6	0-3	18-33	82-94	72-90	56-88	42-70	31-50	13-29
	11-27	Cobbly clay, cobbly silty clay	CH	A-7-6	0-3	12-23	79-87	63-83	56-83	48-76	52-67	32-44
	27-47	Cobbly clay, cobbly silty clay	CH	A-7-6	0-4	22-33	78-95	56-93	49-93	43-84	52-67	32-44
	47-60	Cobbly clay, cobbly clay loam	CL	A-7-6	0-8	16-19	80-96	56-96	48-96	39-80	43-59	25-36

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
TgD: Trujillo-----	0-5	Sandy loam	SC-SM, SC	A-4, A-2-6	0	0	91-100	83-100	61-83	30-46	25-39	6-13
	5-8	Loam	SC-SM, SC	A-6, A-4	0	0	91-100	83-100	67-91	46-66	25-39	6-13
	8-19	Loam, clay loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	91-100	82-100	65-95	36-59	30-46	13-24
	19-26	Loam, clay loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	91-100	82-100	62-91	33-56	30-46	13-24
	26-35	Loam, clay loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	91-100	82-100	69-99	39-63	30-46	13-24
	35-60	Sandy loam, sandy clay loam, loam	SC	A-2-4, A-6	0	0-1	91-100	82-100	60-83	30-46	24-36	9-17
	60-65	Sandy loam, sandy clay loam	SC	A-6, A-2-4	0	0-1	91-100	82-100	67-93	35-54	24-38	9-19
TgE: Trujillo-----	0-5	Sandy loam	SC-SM, SC	A-4, A-2-6	0	0	91-100	83-100	61-83	30-46	25-39	6-13
	5-8	Loam	SC-SM, SC	A-6, A-4	0	0	91-100	83-100	67-91	46-66	25-39	6-13
	8-19	Loam, clay loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	91-100	82-100	65-95	36-59	30-46	13-24
	19-26	Loam, clay loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	91-100	82-100	62-91	33-56	30-46	13-24
	26-35	Loam, clay loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0	91-100	82-100	69-99	39-63	30-46	13-24
	35-60	Sandy loam, sandy clay loam, loam	SC	A-2-4, A-6	0	0-1	91-100	82-100	60-83	30-46	24-36	9-17
	60-65	Sandy loam, sandy clay loam	SC	A-6, A-2-4	0	0-1	91-100	82-100	67-93	35-54	24-38	9-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
TL:												
Torreón, stony--	0-7	Stony clay loam	CL	A-7-6	13-22	12-19	87-100	82-100	71-94	54-74	41-54	18-24
	7-11	Clay loam, clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	71-100	58-90	47-66	25-36
	11-29	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	65-99	52-82	46-64	25-36
	29-37	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0-1	5-18	93-94	91-92	80-92	65-79	46-64	25-36
	37-60	Cobbly clay loam, cobbly silty clay loam	CL, SC	A-7-6, A-6	0-3	12-30	77-88	71-84	59-79	45-62	39-50	21-29
Lorencito-----	0-4	Gravelly clay loam	SC	A-7-6	0	0	70-86	48-74	43-70	33-55	38-49	19-25
	4-10	Clay, silty clay, clay loam	CH	A-7-6	0	0	87-100	72-100	63-100	50-84	45-61	25-37
	10-16	Bedrock			---	---	---	---	---	---	---	---
TmD:												
Trujillo-----	0-9	Loam	CL, SC	A-4, A-7-6	0	0-1	89-100	77-100	67-97	49-74	29-43	9-17
	9-13	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0	0-1	88-100	77-100	65-100	48-79	29-47	12-24
	13-20	Clay loam, loam, sandy clay loam	CL, SC	A-7-6, A-6	0	0-1	88-100	75-100	62-98	47-78	30-46	13-24
	20-36	Clay loam, loam, sandy clay loam	SC, CL	A-6, A-7-6	0	0-1	88-100	74-100	60-96	33-60	30-45	13-25
	36-58	Sandy clay loam, fine sandy loam, sandy loam	SC, CL	A-6, A-4	0	0-1	91-94	83-91	76-91	38-52	26-39	9-19
	58-70	Sandy clay loam, fine sandy loam, sandy loam	SC, CL	A-6, A-2-4	0-1	0-1	89-96	77-91	70-91	34-52	26-39	9-19

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
TnA:												
Trementina, cool	0-4	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	91-99	43-55	18-25
	4-20	Silty clay loam	CL	A-7-6	0	0	100	100	94-100	90-98	41-53	19-25
	20-31	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	94-100	90-98	36-49	18-24
	31-60	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	94-100	90-98	36-47	18-24
TnB:												
Trementina, dry-	0-6	Silt loam	ML	A-6, A-7-6	0	0	100	100	97-100	91-98	37-48	13-19
	6-15	Silt loam	ML	A-7-6, A-6	0	0	100	100	96-100	90-97	37-48	13-19
	15-22	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	97-100	93-100	39-53	17-25
	22-30	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	96-100	92-100	36-49	17-25
	30-44	Silt loam, silty clay loam	CL	A-7-6, A-6	0	0	100	100	94-100	89-100	32-49	13-25
	44-65	Very fine sandy loam, silt loam	CL	A-6, A-7-6	0	0	100	100	95-100	59-71	27-42	10-19
To:												
Torreón-----	0-5	Silt loam	CL	A-7-6, A-6	0-1	0-3	84-100	77-100	68-98	59-86	33-47	11-18
	5-13	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0-5	84-100	77-100	69-100	66-100	47-66	25-36
	13-27	Silty clay loam, silty clay, clay	CH, CL	A-7-6	0	0-3	87-100	75-100	70-100	66-100	46-64	25-36
	27-38	Silty clay loam, silty clay	CL, CH	A-7-6	0	1-3	87-94	76-90	71-90	68-90	43-59	25-36
	38-56	Cobbly clay loam, cobbly clay	CL, CH	A-6, A-7-6	0-3	16-22	80-91	64-87	56-87	43-77	39-59	21-36
	56-72	Cobbly clay loam	CL, SC	A-7-6, A-6	0-7	17-22	79-90	69-90	58-88	45-70	35-49	18-28





Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
ToE:												
Torreón, stony--	0-7	Stony clay loam	CL	A-7-6	13-22	12-19	87-100	82-100	71-94	54-74	41-54	18-24
	7-11	Clay loam, clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	71-100	58-90	47-66	25-36
	11-29	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	65-99	52-82	46-64	25-36
	29-37	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0-1	5-18	93-94	91-92	80-92	65-79	46-64	25-36
	37-60	Cobbly clay loam, cobbly silty clay loam	CL, SC	A-7-6, A-6	0-3	12-30	77-88	71-84	59-79	45-62	39-50	21-29
TsD:												
Travessilla-----	0-5	Sandy loam	SC	A-2-4, A-4	0	0	87-100	75-100	58-86	30-48	21-33	6-12
	5-11	Sandy loam, loam	SC, SC-SM	A-4, A-2-4	0	0-1	87-100	77-100	52-81	24-45	16-30	2-12
	11-14	Sandy loam, loam	SC, SC-SM	A-2-4, A-4	0	0-1	87-100	77-100	51-79	23-43	16-30	2-12
	14-60	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
TsE:												
Torreón-----	0-7	Stony clay loam	CL	A-7-6	13-22	12-19	87-100	82-100	71-94	54-74	41-54	18-24
	7-11	Clay loam, clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	71-100	58-90	47-66	25-36
	11-29	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0	0-5	87-100	77-100	65-99	52-82	46-64	25-36
	29-37	Clay, silty clay, silty clay loam	CH, CL	A-7-6	0-1	5-18	93-94	91-92	80-92	65-79	46-64	25-36
	37-60	Cobbly clay loam, cobbly silty clay loam	CL, SC	A-7-6, A-6	0-3	12-30	77-88	71-84	59-79	45-62	39-50	21-29

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
TsF:												
Travessilla-----	0-5	Sandy loam	SC	A-2-4, A-4	0	0	87-100	75-100	58-86	30-48	21-33	6-12
	5-11	Sandy loam, loam	SC, SC-SM	A-4, A-2-4	0	0-1	87-100	77-100	52-81	24-45	16-30	2-12
	11-14	Sandy loam, loam	SC, SC-SM	A-2-4, A-4	0	0-1	87-100	77-100	51-79	23-43	16-30	2-12
	14-60	Bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Bedrock			---	---	---	---	---	---	---	---
Us:												
Aridic												
Calciustolls---	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-6	Very stony loam	CL, SC	A-6, A-7-6	23-32	14-19	72-88	58-75	49-69	37-53	33-45	13-18
	6-14	Very cobbly clay loam, very cobbly loam	CL, SC	A-2-6, A-7-6	15-25	23-31	70-88	55-75	46-74	35-59	33-51	13-25
	14-19	Cobbly clay loam, cobbly sandy clay loam	CL, SC	A-6, A-7-6	0-1	11-29	78-90	67-81	54-78	42-63	32-49	13-25
	19-42	Silt loam, loam	CL	A-6	0	0-9	91-100	81-100	73-98	64-86	29-39	13-19
	42-60	Bedrock			---	---	---	---	---	---	---	---
VB:												
Vona, overblown-	0-13	Loamy sand	SC-SM, SM	A-4, A-2-4	0	0	100	100	---	---	0-25	NP-4
	13-19	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	100	100	---	---	21-31	6-12
	19-29	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	100	100	---	---	21-31	6-12
	29-40	Loamy sand, sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	---	---	17-23	2-5
	40-72	Sandy loam, fine sandy loam, loamy sand	SC-SM	A-4, A-2-4	0	0	92-100	76-100	---	---	20-29	6-11

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
VD:												
Dargol-----	0-1	Moderately decomposed plant material	PT	A-8	0	0	100	100	---	---	0-14	NP
	1-6	Loam	CL	A-6	3-9	5-9	94-100	90-100	75-91	55-68	31-41	13-19
	6-10	Clay loam, silty clay, clay	CH	A-7-6	0	0	100	100	76-96	62-82	46-66	25-40
	10-29	Silty clay, clay	CH	A-7-6	0-1	0-3	86-94	77-90	71-90	60-84	49-65	29-40
	29-60	Bedrock			---	---	---	---	---	---	---	---
Stout-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	0-14	NP
	1-5	Gravelly sandy loam	SP-SM, SC-SM, SC	A-2-4, A-1-a	0	0-11	65-83	44-83	29-63	12-31	17-28	2-10
	5-16	Gravelly sandy loam, cobbly sandy loam	SP-SM, SC-SM, SC	A-1-a, A-2-6	0	0-14	66-91	36-91	23-71	10-37	16-30	2-12
	16-60	Bedrock			---	---	---	---	---	---	---	---
Vamer-----	0-1	Slightly decomposed plant material	PT	A-8	0	0	100	100	---	---	---	---
	1-3	Fine sandy loam	SC-SM, SC	A-4	0-3	1-11	92-95	88-93	80-88	37-43	27-35	9-13
	3-7	Fine sandy loam	SC-SM, SC	A-4	1-5	0-6	91-95	83-93	76-89	36-44	27-35	9-13
	7-16	Clay, clay loam	CH, CL	A-7-6	0-1	5-12	90-96	85-96	75-96	62-88	45-65	25-40
	16-60	Bedrock			---	---	---	---	---	---	---	---

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
VnC: Vona-----	0-5	Sandy loam	SC-SM, SM	A-4, A-2-4	0	0	100	100	73-83	35-45	18-31	2-10
	5-12	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	100	100	70-78	32-40	21-31	6-12
	12-17	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	100	100	72-80	34-42	21-31	6-12
	17-38	Sandy loam, fine sandy loam	SC-SM, SC	A-6, A-4	0	0	100	100	91-99	40-48	21-31	6-12
	38-41	Sandy loam, fine sandy loam, loamy sand	SM, SC-SM	A-4, A-2-4	0	0	92-100	76-100	51-79	22-41	0-27	NP-10
	41-68	Sandy loam, fine sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0	92-100	76-100	58-88	19-37	0-27	NP-10
VoB: Vona-----	0-5	Sandy loam	SC-SM, SM	A-4, A-2-4	0	0	100	100	73-83	35-45	18-31	2-10
	5-12	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	100	100	70-78	32-40	21-31	6-12
	12-17	Sandy loam, fine sandy loam	SC-SM, SC	A-2-4, A-4	0	0	100	100	72-80	34-42	21-31	6-12
	17-38	Sandy loam, fine sandy loam	SC-SM, SC	A-6, A-4	0	0	100	100	91-99	40-48	21-31	6-12
	38-41	Sandy loam, fine sandy loam, loamy sand	SM, SC-SM	A-4, A-2-4	0	0	92-100	76-100	51-79	22-41	0-27	NP-10
	41-68	Sandy loam, fine sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0	92-100	76-100	58-88	19-37	0-27	NP-10

Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	<u>In.</u>				<u>Pct.</u>	<u>Pct.</u>					<u>Pct.</u>	
VoC:												
Vonid-----	0-6	Sandy loam	SC-SM, SM	A-4, A-2-4	0	0	100	100	73-83	35-45	18-31	2-10
	6-11	Sandy loam, fine sandy loam	SC, SC-SM	A-4, A-2-4	0	0	100	100	73-81	35-43	21-31	6-12
	11-16	Sandy loam, fine sandy loam	SC, SC-SM	A-4, A-2-4	0	0	100	100	73-81	35-43	21-31	6-12
	16-24	Sandy loam, fine sandy loam	SC, SC-SM	A-2-4, A-4	0	0	100	100	73-81	35-43	21-31	6-12
	24-33	Sandy loam, loamy sand	SC-SM, SM	A-2-4	0	0	100	100	74-86	19-31	0-27	NP-10
	33-60	Sandy loam, loamy sand	SM, SC-SM	A-2-4	0	0	100	100	74-86	19-31	0-27	NP-10
VT:												
Villedry-----	0-4	Silt loam	CL	A-6, A-7-6	0	0	100	100	96-100	91-100	31-42	12-19
	4-7	Silt loam	CL	A-6, A-7-6	0	0	100	92-100	88-100	83-100	31-44	12-21
	7-15	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	96-100	92-100	38-47	19-25
	15-25	Silty clay loam	CL	A-7-6, A-6	0	0	100	96-100	91-100	87-99	38-47	19-25
	25-33	Loam, clay loam	CL	A-6, A-7-6	0	0	91-100	74-100	67-100	54-89	31-46	13-25
	33-38	Gravelly loam, silt loam, loam	GC, CL, SC	A-6, A-7-6	0	0-2	68-94	50-91	47-91	37-78	29-41	12-21
	38-60	Bedrock			---	---	---	---	---	---	---	---
Travessilla-----	0-5	Sandy loam	SC	A-2-4, A-4	0	0	87-100	75-100	58-86	30-48	21-33	6-12
	5-11	Sandy loam, loam	SC, SC-SM	A-4, A-2-4	0	0-1	87-100	77-100	52-81	24-45	16-30	2-12
	11-14	Sandy loam, loam	SC, SC-SM	A-2-4, A-4	0	0-1	87-100	77-100	51-79	23-43	16-30	2-12
	14-60	Bedrock			---	---	---	---	---	---	---	---
VtC:												
Valent-----	0-5	Fine sand	SM, SP-SM	A-2-4	0	0	100	100	92-96	11-15	0-21	NP-3
	5-65	Fine sand, loamy fine sand, loamy sand	SM, SP-SM	A-2-4, A-3	0	0	100	95-100	87-97	10-16	0-21	NP-4



Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
WC: Villegreen-----	0-6	Loam	CL	A-6, A-7-6	0	0	100	100	94-100	75-84	28-41	12-19
	6-9	Silty clay loam, clay loam	CL	A-6, A-7-6	0	0	100	100	98-100	94-100	36-45	18-25
	9-15	Silty clay loam, clay loam	CL	A-7-6, A-6	0	0	100	100	94-100	90-98	36-45	18-25
	15-24	Silty clay loam, clay loam	CL	A-6, A-7-6	0	0	100	100	96-100	92-100	36-45	18-25
	24-32	Channery loam, loam, clay loam	CL, SC	A-6, A-7-6	0	0-6	78-95	56-92	54-92	45-89	27-44	12-25
	32-60	Bedrock			---	---	---	---	---	---	---	---
WeB: Wiley-----	0-4	Silt loam	CL	A-6	0	0	100	100	93-100	86-98	27-41	9-19
	4-9	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	9-15	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	15-26	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	95-100	91-99	36-45	18-25
	26-35	Silty clay loam, silt loam	CL	A-7-6, A-6	0	0	100	100	94-100	89-100	29-45	13-25
	35-44	Silty clay loam, silt loam	CL	A-6, A-7-6	0	0	100	100	96-100	91-100	29-45	13-25
	44-72	Silt loam	CL	A-6	0	0	100	100	95-100	90-99	27-38	12-19
WM: Minnequa-----	0-4	Silt loam	CL	A-7-6	0	0	96-100	90-100	83-100	76-94	30-42	12-19
	4-14	Silty clay loam, silt loam	CL	A-7-6	0	0	96-100	90-100	79-100	74-99	29-46	12-25
	14-24	Silty clay loam, silt loam	CL	A-7-6	0	0	96-100	90-100	81-100	75-100	29-46	12-25
	24-29	Bedrock			---	---	---	---	---	---	---	---
	29-60	Bedrock			---	---	---	---	---	---	---	---





Table 20.--Engineering properties--continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In.				Pct.	Pct.					Pct.	
WV:												
Villedry-----	0-4	Silt loam	CL	A-6, A-7-6	0	0	100	100	96-100	91-100	31-42	12-19
	4-7	Silt loam	CL	A-6, A-7-6	0	0	100	92-100	88-100	83-100	31-44	12-21
	7-15	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	96-100	92-100	38-47	19-25
	15-25	Silty clay loam	CL	A-7-6, A-6	0	0	100	96-100	91-100	87-99	38-47	19-25
	25-33	Loam, clay loam	CL	A-6, A-7-6	0	0	91-100	74-100	67-100	54-89	31-46	13-25
	33-38	Gravelly loam, silt loam, loam	GC, CL, SC	A-6, A-7-6	0	0-2	68-94	50-91	47-91	37-78	29-41	12-21
	38-60	Bedrock			---	---	---	---	---	---	---	---
WyB:												
Willid-----	0-6	Silt loam	CL	A-6, A-7-6	0	0	100	100	90-100	83-95	28-42	10-19
	6-10	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	94-100	90-98	37-47	19-25
	10-30	Silty clay loam	CL	A-7-6, A-6	0	0	100	100	93-100	89-97	37-47	19-25
	30-44	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	98-100	94-100	37-47	19-25
	44-60	Silt loam	CL	A-6	0	0	100	100	93-100	87-96	29-39	12-19
YaA:												
Yattle-----	0-4	Fine sandy loam	SC-SM, SC	A-6, A-4	0	0	100	100	86-99	36-49	17-33	2-12
	4-28	Fine sandy loam, loam	SC, SC-SM	A-6, A-4	0	0	100	100	87-97	37-47	20-31	4-12
	28-33	Fine sandy loam, loam	SC, SC-SM	A-6, A-4	0	0	100	100	85-95	38-48	18-31	4-12
	33-43	Fine sandy loam, loam	CL-ML, CL	A-4, A-6	0	0	100	100	79-89	54-64	18-31	4-12
	43-70	Fine sandy loam, loam, sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	85-95	38-48	18-31	4-12
YaC:												
Yattle-----	0-4	Fine sandy loam	SC-SM, SC	A-6, A-4	0	0	100	100	86-99	36-49	17-33	2-12
	4-28	Fine sandy loam, loam	SC, SC-SM	A-6, A-4	0	0	100	100	87-97	37-47	20-31	4-12
	28-33	Fine sandy loam, loam	SC, SC-SM	A-6, A-4	0	0	100	100	85-95	38-48	18-31	4-12
	33-43	Fine sandy loam, loam	CL-ML, CL	A-4, A-6	0	0	100	100	79-89	54-64	18-31	4-12
	43-70	Fine sandy loam, loam, sandy loam	SC, SC-SM	A-4, A-6	0	0	100	100	85-95	38-48	18-31	4-12



Table 21.--Physical soil properties

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
AA:														
Ayon-----	0-6	---	---	18-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.7	1.0-2.0	.10	.28	2	8	0
	6-14	---	---	18-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.7	0.5-2.0	.15	.37			
	14-19	---	---	18-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.7	0.5-2.0	.15	.37			
	19-65	---	---	18-27	1.25-1.40	14.11-42.33	0.04-0.06	0.0-2.3	0.0-0.5	.05	.43			
Apache-----	0-5	---	---	15-27	1.25-1.40	4.23-14.11	0.10-0.14	0.0-2.8	1.0-4.0	.15	.28	1	5	56
	5-9	---	---	20-35	1.25-1.40	4.23-14.11	0.10-0.16	1.0-2.9	0.5-2.0	.20	.32			
	9-15	---	---	20-35	1.25-1.40	4.23-14.11	0.10-0.16	1.0-2.9	0.5-2.0	.20	.32			
	15-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
AC:														
Ayon-----	0-10	---	---	18-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.7	1.0-2.0	.10	.28	5	8	0
	10-14	---	---	18-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.7	0.5-2.0	.15	.37			
	14-32	---	---	18-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.7	0.5-2.0	.15	.37			
	32-60	---	---	18-27	1.25-1.40	14.11-42.33	0.04-0.06	0.0-2.3	0.0-0.5	.05	.43			
Capulin-----	0-8	---	---	18-27	1.25-1.40	14.11-42.34	0.14-0.18	1.0-2.9	1.0-3.0	.28	.28	5	6	48
	8-17	---	---	27-35	1.25-1.40	4.23-14.11	0.16-0.19	1.5-3.5	0.5-2.0	.24	.24			
	17-32	---	---	27-35	1.25-1.40	4.23-14.11	0.16-0.19	1.5-3.5	0.5-2.0	.24	.24			
	32-38	---	---	20-35	1.25-1.40	4.23-14.11	0.14-0.18	1.5-3.5	0.5-1.0	.28	.28			
	38-60	---	---	18-27	1.25-1.40	4.23-14.11	0.12-0.15	0.0-2.9	0.0-0.5	.24	.43			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
AcC:														
Acantilado-----	0-4	---	---	15-25	1.25-1.40	4.23-14.11	0.13-0.17	0.0-2.9	0.5-2.0	.37	.37	5	6	48
	4-15	---	---	15-25	1.25-1.40	4.23-14.11	0.13-0.17	0.0-2.9	0.5-1.0	.37	.37			
	15-28	---	---	20-35	1.15-1.30	4.23-14.11	0.15-0.19	1.0-2.9	0.0-0.5	.43	.43			
	28-39	---	---	20-30	1.15-1.30	4.23-14.11	0.14-0.18	1.0-2.9	0.0-0.5	.49	.49			
	39-58	---	---	20-30	1.15-1.30	4.23-14.11	0.14-0.18	1.0-2.9	0.0-0.5	.49	.49			
	58-62	---	---	20-27	1.15-1.30	4.23-14.11	0.14-0.18	1.0-2.9	0.0-0.5	.49	.49			
	62-70	---	---	15-27	1.15-1.30	4.23-14.11	0.14-0.18	1.0-2.9	0.0-0.5	.49	.49			
AED:														
Dams, earthen dam----	---	---	---	---	---	---	---	---	---	---	---	--	---	---
AnB:														
Ascalon-----	0-3	---	---	5-15	1.35-1.50	14.11-42.33	0.11-0.16	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	3-7	---	---	5-15	1.35-1.50	14.11-42.33	0.11-0.16	0.0-2.9	1.0-3.0	.24	.24			
	7-14	---	---	20-35	1.25-1.40	4.23-14.11	0.13-0.17	1.0-3.5	0.5-2.0	.20	.20			
	14-23	---	---	20-35	1.25-1.40	4.23-14.11	0.13-0.17	1.0-3.5	0.5-2.0	.20	.20			
	23-30	---	---	20-30	1.25-1.40	4.23-14.11	0.14-0.18	1.0-3.0	0.5-1.0	.20	.20			
	30-65	---	---	10-20	1.35-1.50	4.23-14.11	0.10-0.16	0.5-2.9	0.0-0.5	.43	.43			
Ap:														
Apache-----	0-5	---	---	15-27	1.25-1.40	4.23-14.11	0.10-0.14	0.0-2.8	1.0-4.0	.15	.28	1	5	56
	5-9	---	---	20-35	1.25-1.40	4.23-14.11	0.10-0.16	1.0-2.9	0.5-2.0	.20	.32			
	9-15	---	---	20-35	1.25-1.40	4.23-14.11	0.10-0.16	1.0-2.9	0.5-2.0	.20	.32			
	15-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
AR:														
Calcidic Argiustolls-	0-8	---	---	27-35	1.25-1.40	1.41-4.23	0.05-0.07	0.0-2.9	2.0-4.0	.02	.17	3	8	0
	8-10	---	---	40-55	1.15-1.30	0.42-1.41	0.10-0.12	3.0-5.0	2.0-4.0	.10	.17			
	10-20	---	---	40-55	1.15-1.30	0.42-1.41	0.10-0.12	3.0-5.0	0.5-2.0	.10	.17			
	20-35	---	---	35-45	1.15-1.40	0.42-1.41	0.07-0.13	3.0-5.0	0.0-0.5	.10	.28			
	35-60	---	---	27-35	1.25-1.40	1.41-4.23	0.08-0.12	0.0-2.9	0.0-0.5	.10	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
AR: Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
AsB: Ascalon, overblown---	0-15	---	---	3-10	1.45-1.60	42.00-141.00	0.06-0.08	0.0-2.9	1.0-2.0	.17	.17	5	3	86
	15-30	---	---	20-35	1.25-1.40	4.23-14.11	0.13-0.17	1.0-3.5	0.5-2.5	.20	.20			
	30-40	---	---	20-30	1.25-1.40	4.23-14.11	0.14-0.18	1.0-3.5	0.5-1.0	.20	.20			
	40-49	---	---	10-20	1.35-1.50	14.11-42.33	0.10-0.16	0.5-2.9	0.0-0.5	.43	.43			
	49-65	---	---	10-20	1.35-1.50	14.11-42.33	0.10-0.16	0.5-2.9	0.0-0.5	.43	.43			
AV: Aguilar-----	0-4	---	---	10-20	1.35-1.50	4.00-42.00	0.10-0.14	0.0-2.9	0.5-2.0	.28	.28	2	3	86
	4-10	---	---	35-55	1.15-1.30	0.01-0.42	0.15-0.18	7.0-8.9	0.5-2.0	.32	.32			
	10-14	---	---	35-55	1.15-1.30	0.01-0.42	0.10-0.13	7.0-8.9	0.5-1.2	.37	.37			
	14-23	---	---	35-55	1.15-1.30	0.01-0.42	0.10-0.13	7.0-8.9	0.0-0.5	.37	.37			
	23-29	---	---	35-55	1.15-1.30	0.01-0.42	0.10-0.13	7.0-8.9	0.0-0.5	.37	.37			
	29-45	---	---	27-45	1.15-1.30	0.42-4.23	0.10-0.12	5.0-8.9	0.0-0.5	.37	.37			
	45-65	---	---	27-45	1.15-1.30	0.42-4.23	0.10-0.12	5.0-7.5	0.0-0.5	.37	.37			
Beckton-----	0-3	---	---	18-27	1.15-1.30	4.23-14.11	0.17-0.20	0.0-2.9	1.0-3.0	.37	.37	2	6	48
	3-13	---	---	35-50	1.15-1.30	0.01-0.42	0.08-0.10	7.0-8.9	0.5-2.0	.32	.32			
	13-23	---	---	35-50	1.15-1.30	0.01-0.42	0.08-0.10	7.0-8.9	0.5-2.0	.32	.32			
	23-36	---	---	40-50	1.15-1.30	0.01-0.42	0.08-0.10	7.0-8.9	0.5-2.0	.32	.32			
	36-52	---	---	35-50	1.15-1.30	0.01-0.42	0.10-0.14	7.0-8.9	0.5-1.0	.24	.24			
	52-59	---	---	35-50	1.15-1.30	0.01-0.42	0.10-0.14	4.0-6.0	0.5-1.0	.24	.24			
	59-72	---	---	8-24	1.35-1.60	14.11-42.33	0.09-0.12	0.0-2.9	0.0-0.5	.32	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
AvC:														
Aguilar-----	0-6	---	---	20-25	1.35-1.50	4.23-14.11	0.16-0.20	0.0-2.9	0.5-2.0	.32	.32	2	4L	86
	6-14	---	---	40-55	1.15-1.30	0.01-0.42	0.15-0.18	7.0-8.9	0.5-2.0	.32	.32			
	14-28	---	---	40-55	1.15-1.30	0.01-0.42	0.10-0.13	7.0-8.9	0.0-0.5	.37	.37			
	28-41	---	---	35-45	1.15-1.30	0.01-0.42	0.10-0.13	7.0-8.9	0.0-0.5	.37	.37			
	41-65	---	---	35-45	1.15-1.30	0.42-4.23	0.10-0.12	5.0-7.5	0.0-0.5	.37	.37			
AW:														
Allens Park-----	0-2	---	---	5-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	2	3	86
	2-4	---	---	5-20	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	0.5-2.0	.28	.28			
	4-9	---	---	5-20	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28			
	9-14	---	---	20-27	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28			
	14-30	---	---	20-35	1.25-1.40	4.23-14.11	0.13-0.15	0.5-2.9	0.0-0.5	.20	.24			
	30-37	---	---	20-30	1.25-1.40	4.23-14.11	0.13-0.15	0.5-2.9	0.0-0.5	.20	.24			
	37-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
Wahatoya-----	0-1	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	2	3	86
	1-3	---	---	10-20	1.35-1.50	14.11-42.34	0.10-0.12	0.0-2.9	0.5-2.0	.28	.28			
	3-9	---	---	10-20	1.35-1.50	14.11-42.34	0.10-0.14	0.0-2.9	0.5-1.0	.28	.28			
	9-21	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.11	1.0-2.9	0.5-1.0	.10	.24			
	21-31	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.11	0.0-2.9	0.5-1.0	.10	.24			
	31-36	---	---	15-30	1.25-1.40	4.23-14.11	0.05-0.09	0.0-2.9	0.0-1.0	.10	.24			
	36-60	---	---	---	---	0.42-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
<b>BaA:</b>														
Baca-----	0-3	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	3-6	---	---	27-40	1.15-1.30	4.23-14.11	0.15-0.20	0.0-2.9	1.0-2.0	.37	.37			
	6-13	---	---	35-50	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	13-21	---	---	35-50	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	21-27	---	---	35-45	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	27-37	---	---	20-45	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	37-47	---	---	20-35	1.15-1.40	4.23-14.11	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
	47-72	---	---	15-30	1.15-1.40	4.23-14.11	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
<b>BaB:</b>														
Bacid-----	0-5	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	3.0-5.0	1.0-2.0	.37	.37	5	6	48
	5-13	---	---	35-45	1.15-1.40	1.41-4.23	0.17-0.21	5.0-7.0	0.5-2.0	.28	.28			
	13-20	---	---	35-50	1.15-1.40	0.42-1.41	0.14-0.20	6.0-8.9	0.5-1.0	.20	.20			
	20-30	---	---	35-50	1.15-1.40	0.42-1.41	0.14-0.20	6.0-8.9	0.5-1.0	.20	.20			
	30-60	---	---	15-30	1.25-1.40	1.41-14.11	0.15-0.21	3.0-5.0	0.0-0.5	.37	.37			
<b>BaC:</b>														
Baca, cool-----	0-6	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	6-9	---	---	35-45	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	9-25	---	---	35-45	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	25-32	---	---	35-45	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	32-45	---	---	20-35	1.15-1.40	4.23-14.11	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
	45-60	---	---	15-30	1.15-1.40	4.23-14.11	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
<b>BCA:</b>														
Baca, cool-----	0-6	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	6-9	---	---	35-45	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	9-25	---	---	35-45	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	25-32	---	---	35-45	1.15-1.40	1.41-4.23	0.16-0.18	3.0-5.9	0.5-2.0	.24	.24			
	32-45	---	---	20-35	1.15-1.40	4.23-14.11	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
	45-60	---	---	15-30	1.15-1.40	4.23-14.11	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			



Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
<b>Bk:</b>														
Fallriver-----	0-2	---	---	8-18	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	8	0
	2-16	---	---	8-18	1.35-1.50	14.11-42.33	0.03-0.04	0.0-2.5	0.5-1.0	.05	.28			
	16-30	---	---	8-18	1.35-1.50	14.11-42.33	0.03-0.04	0.0-2.7	0.0-0.5	.05	.32			
	30-70	---	---	3-18	1.35-1.60	14.11-42.33	0.03-0.07	0.0-1.0	0.0-0.5	.10	.28			
<b>BnA:</b>														
Bacid-----	0-8	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	4.0-6.0	1.0-2.0	.28	.28	5	6	48
	8-15	---	---	40-50	1.15-1.40	0.42-1.41	0.14-0.21	4.0-6.0	0.5-1.0	.20	.20			
	15-30	---	---	35-50	1.15-1.40	0.42-1.41	0.14-0.20	4.0-6.0	0.5-1.0	.20	.20			
	30-60	---	---	15-27	1.25-1.30	4.23-14.11	0.14-0.20	3.0-4.9	0.0-0.5	.43	.43			
<b>BT:</b>														
Barela-----	0-5	---	---	15-25	1.15-1.30	14.11-42.34	0.14-0.18	0.0-2.9	3.0-7.0	.28	.28	3	6	48
	5-11	---	---	20-27	1.15-1.30	4.23-14.11	0.11-0.15	0.0-2.9	2.0-4.0	.24	.37			
	11-16	---	---	27-55	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.9	0.5-2.0	.15	.28			
	16-20	---	---	35-55	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.9	0.5-1.0	.15	.28			
	20-30	---	---	35-55	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.5	0.5-1.0	.15	.28			
	30-36	---	---	35-55	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.5	0.5-1.0	.15	.28			
	36-48	---	---	35-50	1.15-1.30	0.42-1.41	0.06-0.10	0.0-2.7	0.0-0.5	.15	.24			
	48-60	---	---	---	---	0.10-0.40	---	---	---	---	---			
<b>Raton-----</b>	0-6	---	---	20-27	1.25-1.40	4.23-14.11	0.10-0.14	0.0-2.9	2.0-4.0	.15	.24	1	7	38
	6-9	---	---	27-40	1.25-1.40	1.41-4.23	0.09-0.11	0.0-2.9	1.0-3.0	.05	.20			
	9-17	---	---	40-55	1.30-1.40	0.42-1.41	0.07-0.09	1.0-4.5	0.5-2.0	.05	.17			
	17-60	---	---	---	---	0.01-0.40	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
<b>BwA:</b>														
Bloom-----	0-8	---	---	28-35	1.15-1.30	1.41-4.23	0.17-0.20	3.5-5.5	0.5-1.0	.32	.32	5	6	48
	8-18	---	---	20-35	1.15-1.40	1.41-4.23	0.15-0.21	3.5-5.5	0.5-1.0	.37	.37			
	18-45	---	---	20-35	1.15-1.40	1.41-14.11	0.15-0.21	3.5-5.5	0.5-1.0	.37	.37			
	45-60	---	---	20-35	1.15-1.40	4.23-14.11	0.15-0.21	3.0-4.9	0.5-1.0	.37	.37			
<b>Bx:</b>														
Boxcanyon-----	0-2	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	0.0-2.9	1.0-3.0	.37	.37	3	6	48
	2-17	---	---	35-50	1.15-1.40	1.41-4.23	0.14-0.21	3.0-5.9	0.5-2.0	.28	.28			
	17-27	---	---	35-45	1.15-1.40	0.42-1.41	0.14-0.21	6.0-8.9	0.5-2.0	.32	.32			
	27-33	---	---	35-45	1.15-1.40	1.41-4.23	0.14-0.21	3.0-5.9	0.5-2.0	.32	.32			
	33-45	---	---	20-35	1.15-1.40	4.23-14.11	0.14-0.21	0.0-2.9	0.0-1.0	.37	.37			
	45-54	---	---	15-27	1.15-1.40	4.23-14.11	0.10-0.14	0.0-2.9	0.0-0.5	.28	.49			
	54-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
<b>CaD:</b>														
Razor-----	0-2	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.16	7.0-8.9	1.0-3.0	.15	.15	3	4	86
	2-10	---	---	40-60	1.15-1.30	0.42-1.41	0.14-0.18	7.0-8.9	0.5-1.0	.20	.20			
	10-28	---	---	40-60	1.15-1.30	0.42-1.41	0.14-0.18	7.0-8.9	0.5-1.0	.20	.20			
	28-40	---	---	---	---	0.01-0.42	0.14-0.16	---	---	---	---			
<b>CC:</b>														
Chacuaco-----	0-8	---	---	10-27	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	1.0-2.0	.28	.28	2	6	48
	8-12	---	---	18-30	1.25-1.40	4.23-14.11	0.14-0.18	1.5-2.9	1.0-2.0	.28	.28			
	12-19	---	---	20-35	1.25-1.40	1.41-4.23	0.16-0.20	1.5-2.9	0.5-2.0	.24	.24			
	19-26	---	---	20-35	1.25-1.40	1.41-4.23	0.16-0.20	1.5-2.9	0.5-2.0	.24	.24			
	26-32	---	---	15-27	1.25-1.40	4.23-14.11	0.07-0.13	0.5-2.9	0.0-0.5	.17	.43			
	32-60	---	---	---	---	0.10-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
CC:														
Capulin-----	0-8	---	---	18-27	1.25-1.40	14.11-42.34	0.14-0.18	1.0-2.9	1.0-3.0	.28	.28	5	6	48
	8-17	---	---	27-35	1.25-1.40	4.23-14.11	0.16-0.19	1.5-3.5	0.5-2.0	.24	.24			
	17-32	---	---	27-35	1.25-1.40	4.23-14.11	0.16-0.19	1.5-3.5	0.5-2.0	.24	.24			
	32-38	---	---	20-35	1.25-1.40	4.23-14.11	0.14-0.18	1.5-3.5	0.5-1.0	.28	.28			
	38-60	---	---	18-27	1.25-1.40	4.23-14.11	0.12-0.15	0.0-2.9	0.0-0.5	.24	.43			
CD:														
Chacuaco-----	0-5	---	---	10-27	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	1.0-2.0	.28	.28	2	6	48
	5-10	---	---	18-27	1.25-1.40	4.23-14.11	0.14-0.18	1.5-2.9	1.0-2.0	.28	.28			
	10-20	---	---	20-35	1.25-1.40	1.41-4.23	0.16-0.20	1.5-2.9	0.5-2.0	.24	.24			
	20-30	---	---	15-27	1.25-1.40	4.23-14.11	0.05-0.10	0.5-2.9	0.0-0.5	.17	.43			
	30-60	---	---	---	---	0.10-1.41	---	---	---	---	---			
Dalero-----	0-5	---	---	5-18	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	1.0-2.0	.15	.24	1	5	56
	5-10	---	---	5-18	1.35-1.50	4.23-14.11	0.07-0.13	0.0-2.9	0.5-1.0	.20	.37			
	10-60	---	---	---	---	0.10-1.41	---	---	---	---	---			
Co:														
Collegiate-----	0-10	---	---	12-18	1.35-1.50	4.23-14.11	0.10-0.12	1.0-2.9	3.0-7.0	.20	.20	3	5	56
	10-38	---	---	10-18	1.25-1.50	4.23-14.11	0.10-0.16	1.0-2.9	2.0-4.0	.24	.24			
	38-60	---	---	0-5	1.45-1.60	42.34-141.00	0.03-0.05	0.0-2.5	0.0-1.0	.05	.20			
CpA:														
Calemore-----	0-9	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	3.0-5.0	1.0-3.0	.32	.32	5	6	48
	9-15	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	2.0-4.0	1.0-3.0	.32	.32			
	15-22	---	---	27-35	1.15-1.30	1.41-4.23	0.15-0.21	2.0-4.0	0.5-2.0	.37	.37			
	22-36	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	2.0-4.0	0.0-1.0	.37	.37			
	36-41	---	---	20-27	1.15-1.30	1.41-4.23	0.15-0.21	1.0-2.9	0.0-0.5	.43	.43			
	41-65	---	---	15-27	1.15-1.30	4.23-14.11	0.14-0.20	1.0-2.9	0.0-0.5	.28	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
CpB: Calemore-----	0-7	---	---	18-27	1.15-1.30	4.23-14.11	0.14-0.20	1.0-2.9	1.0-3.0	.32	.32	5	6	48
	7-11	---	---	20-35	1.15-1.30	1.41-14.11	0.17-0.21	2.0-4.0	1.0-3.0	.32	.32			
	11-20	---	---	25-35	1.15-1.30	1.41-4.23	0.15-0.21	2.0-4.0	0.5-2.0	.37	.37			
	20-36	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	2.0-4.0	0.0-1.0	.28	.28			
	36-42	---	---	27-35	1.15-1.30	1.41-4.23	0.15-0.21	2.0-4.0	0.0-0.5	.28	.28			
	42-65	---	---	15-27	1.15-1.30	4.23-14.11	0.14-0.20	1.0-2.9	0.0-0.5	.43	.43			
CpC: Capulin-----	0-8	---	---	18-27	1.25-1.40	14.11-42.34	0.14-0.18	1.0-2.9	1.0-3.0	.28	.28	5	6	48
	8-17	---	---	27-35	1.25-1.40	4.23-14.11	0.16-0.19	1.5-3.5	0.5-2.0	.24	.24			
	17-32	---	---	27-35	1.25-1.40	4.23-14.11	0.16-0.19	1.5-3.5	0.5-2.0	.24	.24			
	32-38	---	---	20-35	1.25-1.40	4.23-14.11	0.14-0.18	1.5-3.5	0.5-1.0	.28	.28			
	38-60	---	---	18-27	1.25-1.40	4.23-14.11	0.12-0.15	0.0-2.9	0.0-0.5	.24	.43			
CpT: Capulin-----	0-8	---	---	18-27	1.25-1.40	14.11-42.34	0.14-0.18	1.0-2.9	1.0-3.0	.28	.28	5	6	48
	8-17	---	---	27-35	1.25-1.40	4.23-14.11	0.16-0.19	1.5-3.5	0.5-2.0	.24	.24			
	17-32	---	---	27-35	1.25-1.40	4.23-14.11	0.16-0.19	1.5-3.5	0.5-2.0	.24	.24			
	32-38	---	---	20-35	1.25-1.40	4.23-14.11	0.14-0.18	1.5-3.5	0.5-1.0	.28	.28			
	38-60	---	---	18-27	1.25-1.40	4.23-14.11	0.12-0.15	0.0-2.9	0.0-0.5	.24	.43			
Torreón-----	0-7	---	---	27-40	1.25-1.40	1.41-4.23	0.13-0.16	2.5-4.0	3.0-5.0	.10	.15	5	4	86
	7-10	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	1.0-3.0	.20	.20			
	10-29	---	---	35-55	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	29-35	---	---	35-55	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	35-45	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.16	3.0-5.9	0.0-0.5	.17	.32			
	45-64	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.16	3.0-5.9	0.0-0.5	.17	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
Ct:														
Breece-----	0-7	---	---	12-18	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	2.0-4.0	.20	.20	5	3	86
	7-45	---	---	10-18	1.35-1.50	14.11-42.33	0.10-0.14	0.0-2.9	1.0-3.0	.24	.24			
	45-60	---	---	5-18	1.35-1.50	14.11-42.33	0.08-0.10	0.0-2.9	0.5-2.0	.28	.28			
CwC:														
Cumulic Cryaquolls---	0-2	---	---	35-50	0.50-0.90	100.00- 300.00	0.25-0.30	---	20-40	.05	.05	5	8	0
	2-10	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.20	6.0-8.9	3.0-5.0	.15	.15			
	10-60	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.17	6.0-8.9	1.0-4.0	.20	.20			
DaE:														
Dalrose-----	0-5	---	---	5-18	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	1.0-2.0	.15	.24	1	5	56
	5-10	---	---	5-18	1.35-1.50	4.23-14.11	0.07-0.13	0.0-2.9	0.5-1.0	.20	.37			
	10-60	---	---	---	---	0.10-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
De:														
Davtone-----	0-16	---	---	10-25	1.35-1.45	14.11-42.34	0.16-0.18	0.0-2.9	4.0-6.0	.20	.20	3	6	48
	16-23	---	---	20-27	1.35-1.45	4.23-14.11	0.14-0.16	1.0-2.9	1.0-3.0	.24	.24			
	23-38	---	---	20-35	1.30-1.40	4.23-14.11	0.12-0.14	1.0-2.9	0.5-1.0	.10	.20			
	38-64	---	---	15-27	1.40-1.50	14.11-42.33	0.06-0.08	0.0-2.9	0.3-0.5	.10	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
DFV: Fuera-----	0-2	---	---	18-27	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	7	38
	2-7	---	---	18-27	1.25-1.40	4.23-14.11	0.12-0.14	0.0-2.9	0.5-1.0	.20	.37			
	7-10	---	---	20-40	1.25-1.40	1.41-14.11	0.13-0.15	3.0-4.0	0.0-0.5	.15	.28			
	10-11	---	---	20-40	1.25-1.40	1.41-14.11	0.13-0.15	3.0-4.0	0.0-0.5	.15	.28			
	11-27	---	---	45-60	1.15-1.30	0.42-1.41	0.10-0.12	3.0-5.5	0.0-0.5	.10	.20			
	27-47	---	---	45-60	1.15-1.30	0.42-1.41	0.10-0.12	3.0-5.5	0.0-0.5	.10	.20			
	47-60	---	---	35-50	1.15-1.40	0.42-1.41	0.12-0.14	3.0-5.5	0.0-0.5	.15	.24			
Dargol-----	0-1	---	---	20-27	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	2	6	48
	1-6	---	---	20-27	1.25-1.40	4.23-14.11	0.13-0.16	0.0-2.9	1.0-2.0	.28	.28			
	6-10	---	---	35-55	1.20-1.35	0.10-1.41	0.16-0.20	6.0-8.9	0.5-1.0	.24	.24			
	10-29	---	---	40-55	1.15-1.30	0.10-1.41	0.13-0.16	6.0-8.9	0.0-0.5	.28	.28			
	29-60	---	---	---	---	0.00-0.42	---	---	---	---	---			
Vamer-----	0-1	---	---	15-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	1	3	86
	1-3	---	---	15-20	1.35-1.50	4.23-14.11	0.12-0.15	0.0-2.9	1.0-2.0	.24	.24			
	3-7	---	---	15-20	1.35-1.50	4.23-14.11	0.12-0.15	0.0-2.9	1.0-2.0	.24	.24			
	7-16	---	---	35-55	1.15-1.40	0.42-1.41	0.14-0.17	6.0-8.9	0.0-0.5	.20	.20			
	16-60	---	---	---	---	0.01-1.00	---	---	---	---	---			
DH: Davtone-----	0-19	---	---	10-20	1.35-1.45	14.11-42.34	0.16-0.18	0.0-2.9	4.0-6.0	.20	.20	4	5	56
	19-30	---	---	20-35	1.35-1.45	4.23-14.11	0.14-0.16	0.0-2.9	1.0-2.0	.24	.24			
	30-41	---	---	20-35	1.30-1.40	4.23-14.11	0.12-0.14	1.0-2.9	0.5-1.0	.10	.20			
	41-48	---	---	20-35	1.30-1.40	4.23-14.11	0.12-0.14	1.0-2.9	0.4-1.0	.10	.20			
	48-72	---	---	15-20	1.40-1.50	14.11-42.33	0.06-0.08	0.0-2.9	0.3-0.5	.10	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
DH:														
Histic Cryaquolls----	0-6	---	---	10-20	0.50-0.90	42.33-100.00	0.23-0.26	---	20-40	.10	.15	3	8	0
	6-10	---	---	10-20	0.50-0.90	42.33-100.00	0.23-0.26	---	20-40	.10	.15			
	10-20	---	---	10-20	1.40-1.50	14.11-42.33	0.08-0.10	0.0-2.9	3.0-7.0	.10	.15			
	20-29	---	---	10-20	1.40-1.50	14.11-42.33	0.08-0.10	0.0-2.9	2.0-4.0	.10	.17			
	29-60	---	---	10-20	1.40-1.55	14.11-42.33	0.05-0.07	0.0-2.9	0.0-0.5	.05	.28			
Dm:														
Demayo-----	0-5	---	---	27-35	1.25-1.40	1.41-4.23	0.08-0.12	1.0-3.0	1.0-3.0	.05	.20	1	8	0
	5-12	---	---	27-35	1.25-1.40	1.41-4.23	0.10-0.13	1.0-3.0	1.0-3.0	.05	.20			
	12-22	---	---	---	---	0.01-1.41	---	---	---	---	---			
Ds:														
Des Moines-----	0-4	---	---	18-27	1.15-1.30	4.23-14.11	0.11-0.15	0.0-2.9	2.0-4.0	.17	.32	5	7	38
	4-18	---	---	27-40	1.15-1.30	1.41-4.23	0.09-0.11	2.0-4.0	1.0-3.0	.10	.28			
	18-36	---	---	40-50	1.15-1.30	0.42-1.41	0.04-0.05	4.0-6.0	0.5-1.0	.05	.20			
	36-48	---	---	20-35	1.25-1.40	1.41-14.11	0.04-0.05	0.0-2.5	0.0-0.5	.05	.24			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
Dt:														
Davtone-----	0-19	---	---	10-20	1.35-1.45	14.11-42.34	0.16-0.18	0.0-2.9	4.0-6.0	.20	.20	4	5	56
	19-30	---	---	20-35	1.35-1.45	4.23-14.11	0.14-0.16	0.0-2.9	1.0-2.0	.24	.24			
	30-41	---	---	20-35	1.30-1.40	4.23-14.11	0.12-0.14	1.0-2.9	0.5-1.0	.10	.20			
	41-48	---	---	20-35	1.30-1.40	4.23-14.11	0.12-0.14	1.0-2.9	0.4-1.0	.10	.20			
	48-72	---	---	15-20	1.40-1.50	14.11-42.33	0.06-0.08	0.0-2.9	0.3-0.5	.10	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
Dv:														
Feterita-----	0-3	---	---	18-27	1.15-1.25	4.23-14.11	0.15-0.20	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	3-8	---	---	35-50	1.15-1.25	0.42-1.41	0.14-0.21	3.0-5.9	2.0-4.0	.24	.24			
	8-21	---	---	35-50	1.15-1.25	0.10-1.41	0.14-0.21	6.0-8.9	0.5-2.0	.28	.28			
	21-35	---	---	35-50	1.15-1.25	0.10-1.41	0.14-0.21	6.0-8.9	0.5-2.0	.28	.28			
	35-72	---	---	27-35	1.15-1.25	4.23-14.11	0.17-0.21	3.0-5.9	0.0-1.0	.28	.28			
Ec:														
Eguaje-----	0-5	---	---	27-35	1.25-1.40	1.41-4.23	0.13-0.16	0.0-2.9	1.0-3.0	.10	.20	3	7	38
	5-14	---	---	35-50	1.15-1.40	1.41-4.23	0.07-0.11	3.0-5.9	0.5-2.0	.05	.20			
	14-19	---	---	35-50	1.15-1.40	1.41-4.23	0.07-0.11	1.0-2.9	0.0-0.5	.10	.24			
	19-28	---	---	35-50	1.15-1.40	1.41-4.23	0.07-0.11	1.0-2.9	0.0-0.5	.10	.24			
	28-60	---	---	20-35	1.25-1.40	1.41-14.11	0.08-0.12	0.0-2.9	0.0-0.5	.10	.28			
Demayo-----	0-5	---	---	27-35	1.25-1.40	1.41-4.23	0.08-0.12	1.0-3.0	1.0-3.0	.05	.20	1	8	0
	5-12	---	---	27-35	1.25-1.40	1.41-4.23	0.10-0.13	1.0-3.0	1.0-3.0	.05	.20			
	12-22	---	---	---	---	0.01-1.41	---	---	---	---	---			
EL:														
Ellicott-----	0-7	---	---	6-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-2.0	.28	.28	4	3	86
	7-14	---	---	5-18	1.35-1.60	14.11-42.33	0.10-0.13	0.0-2.9	0.0-1.0	.28	.28			
	14-21	---	---	0-10	1.35-1.60	14.11-42.33	0.10-0.13	0.0-2.9	0.0-1.0	.28	.28			
	21-31	---	---	2-15	1.35-1.60	14.11-42.33	0.10-0.13	0.0-2.9	0.0-1.0	.28	.28			
	31-40	---	---	0-2	1.35-1.60	42.00-141.00	0.10-0.13	0.0-2.9	0.0-1.0	.28	.28			
	40-62	---	---	0-2	1.45-1.55	42.34-141.14	0.02-0.04	0.0-0.5	0.0-0.5	.05	.17			
Las Animas-----	0-3	---	---	15-25	1.25-1.40	4.23-42.33	0.08-0.18	0.0-2.9	0.5-2.0	.24	.24	5	6	48
	3-11	---	---	5-18	1.25-1.40	14.11-42.33	0.06-0.20	0.0-2.9	0.5-1.0	.20	.20			
	11-23	---	---	5-18	1.15-1.60	14.11-42.33	0.06-0.20	0.0-2.9	0.5-1.0	.20	.20			
	23-26	---	---	5-18	1.15-1.60	14.11-42.33	0.15-0.20	0.0-2.9	0.5-1.0	.43	.43			
	26-36	---	---	3-15	1.15-1.60	14.11-42.33	0.05-0.08	0.0-2.0	0.0-1.0	.20	.20			
	36-65	---	---	0-7	1.45-1.60	42.33-141.10	0.05-0.08	0.0-1.0	0.0-0.5	.20	.20			



Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
ES:														
Embargo-----	0-7	---	---	20-27	1.15-1.30	4.23-14.11	0.11-0.15	0.0-2.9	4.0-6.0	.15	.28	2	7	38
	7-14	---	---	20-27	1.15-1.30	4.23-14.11	0.08-0.10	0.0-2.9	1.0-3.0	.15	.37			
	14-20	---	---	35-40	1.25-1.40	0.42-4.23	0.09-0.11	1.0-3.5	0.5-1.0	.10	.28			
	20-25	---	---	35-50	1.15-1.40	0.42-1.41	0.04-0.06	1.0-3.5	0.0-0.5	.05	.20			
	25-60	---	---	---	---	0.01-0.40	---	---	---	---	---			
Schwacheim-----	0-5	---	---	20-27	1.15-1.30	4.23-14.11	0.11-0.15	0.0-2.9	2.0-5.0	.15	.28	1	7	38
	5-9	---	---	20-27	1.15-1.30	4.23-14.11	0.08-0.10	0.0-2.9	1.0-4.0	.15	.37			
	9-14	---	---	20-35	1.15-1.30	4.23-14.11	0.04-0.06	0.0-2.9	1.0-4.0	.05	.32			
	14-18	---	---	---	---	0.01-0.40	---	---	---	---	---			
FcB:														
Wapiti-----	0-6	---	---	27-32	1.30-1.45	1.41-4.23	0.17-0.21	1.5-3.5	1.0-3.0	.24	.24	5	6	48
	6-14	---	---	20-35	1.30-1.45	4.23-14.11	0.16-0.18	1.5-3.5	1.0-2.0	.32	.32			
	14-26	---	---	20-35	1.30-1.45	4.23-14.11	0.16-0.18	1.5-3.5	0.0-0.5	.32	.32			
	26-34	---	---	20-35	1.30-1.45	4.23-14.11	0.16-0.18	1.5-3.5	0.0-0.5	.32	.32			
	34-43	---	---	17-30	1.35-1.50	4.23-14.11	0.16-0.18	1.5-2.9	0.0-0.5	.37	.37			
	43-67	---	---	12-27	1.35-1.50	4.23-14.11	0.16-0.18	0.5-2.9	0.0-0.5	.37	.37			
FcC:														
Fort-----	0-7	---	---	18-27	1.35-1.50	4.23-14.11	0.16-0.18	1.0-2.9	1.0-2.0	.28	.28	5	6	48
	7-21	---	---	22-35	1.35-1.50	4.23-14.11	0.16-0.18	1.5-2.9	0.0-0.5	.32	.32			
	21-35	---	---	27-35	1.35-1.50	1.41-14.11	0.16-0.18	1.5-3.5	0.0-0.5	.32	.32			
	35-40	---	---	18-27	1.25-1.40	4.23-14.11	0.16-0.18	1.5-3.5	0.0-0.5	.32	.32			
	40-65	---	---	15-27	1.35-1.50	4.23-42.33	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
FcD: Fort-----	0-4	---	---	12-20	1.35-1.50	14.11-42.33	0.10-0.13	1.0-2.9	1.0-2.0	.24	.24	5	3	86
	4-7	---	---	18-27	1.30-1.45	4.23-14.11	0.16-0.18	2.5-3.5	0.0-0.5	.32	.32			
	7-13	---	---	18-35	1.30-1.45	4.23-14.11	0.16-0.18	2.5-4.0	0.0-0.5	.32	.32			
	13-28	---	---	18-35	1.30-1.45	4.23-14.11	0.16-0.18	2.5-4.0	0.0-0.5	.32	.32			
	28-60	---	---	12-27	1.35-1.55	4.23-42.33	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
Fp: Fishers-----	0-1	---	---	20-27	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	8	0
	1-5	---	---	20-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	1.0-4.0	.10	.28			
	5-9	---	---	20-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	1.0-4.0	.10	.28			
	9-14	---	---	15-27	1.25-1.40	4.23-14.11	0.07-0.11	0.0-2.9	0.5-1.0	.15	.37			
	14-19	---	---	35-50	1.15-1.40	0.42-1.41	0.07-0.11	3.0-5.5	0.0-0.5	.10	.20			
	19-36	---	---	35-50	1.15-1.40	0.42-1.41	0.07-0.11	3.0-5.0	0.0-0.5	.10	.20			
	36-47	---	---	35-50	1.15-1.40	0.42-1.41	0.07-0.11	3.0-5.0	0.0-0.5	.10	.20			
	47-60	---	---	25-40	1.25-1.40	1.41-4.23	0.09-0.11	0.0-2.9	0.0-0.5	.10	.28			
FtC: Olnest-----	0-3	---	---	12-17	1.35-1.50	14.11-42.33	0.10-0.13	0.5-2.9	1.0-2.0	.24	.24	5	5	56
	3-10	---	---	20-32	1.35-1.50	4.23-14.11	0.14-0.18	1.0-3.5	0.5-1.0	.20	.20			
	10-21	---	---	20-32	1.30-1.45	4.23-14.11	0.14-0.18	1.0-3.5	0.5-1.0	.20	.20			
	21-38	---	---	10-20	1.30-1.45	4.23-14.11	0.10-0.20	0.5-3.5	0.0-1.0	.24	.24			
	38-72	---	---	10-20	1.25-1.50	4.23-14.11	0.10-0.20	0.5-2.9	0.0-1.0	.24	.24			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
FuD:														
Bandarito-----	0-3	---	---	27-35	1.25-1.40	1.41-4.23	0.17-0.20	0.0-2.9	3.0-5.0	.15	.15	5	6	48
	3-12	---	---	35-45	1.15-1.30	1.41-4.23	0.14-0.18	3.0-5.9	2.0-4.0	.24	.24			
	12-18	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-3.0	.20	.20			
	18-29	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	29-35	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	35-40	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	40-56	---	---	35-45	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	0.0-1.5	.20	.20			
	56-66	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.19	3.0-5.9	0.0-1.0	.32	.32			
FuE:														
Bandarito-----	0-3	---	---	27-35	1.25-1.40	1.41-4.23	0.17-0.20	0.0-2.9	3.0-5.0	.15	.15	5	6	48
	3-12	---	---	35-45	1.15-1.30	1.41-4.23	0.14-0.18	3.0-5.9	2.0-4.0	.24	.24			
	12-18	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-3.0	.20	.20			
	18-29	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	29-35	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	35-40	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	40-56	---	---	35-45	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	0.0-1.5	.20	.20			
	56-66	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.19	3.0-5.9	0.0-1.0	.32	.32			
FW:														
Bandarito-----	0-3	---	---	27-35	1.25-1.40	1.41-4.23	0.17-0.20	0.0-2.9	3.0-5.0	.15	.15	5	6	48
	3-12	---	---	35-45	1.15-1.30	1.41-4.23	0.14-0.18	3.0-5.9	2.0-4.0	.24	.24			
	12-18	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-3.0	.20	.20			
	18-29	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	29-35	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	35-40	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	1.0-2.0	.20	.20			
	40-56	---	---	35-45	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	0.0-1.5	.20	.20			
	56-66	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.19	3.0-5.9	0.0-1.0	.32	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
FW: Fishers-----	0-1	---	---	20-27	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	8	0
	1-5	---	---	20-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	1.0-4.0	.10	.28			
	5-9	---	---	20-27	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	1.0-4.0	.10	.28			
	9-14	---	---	15-27	1.25-1.40	4.23-14.11	0.07-0.11	0.0-2.9	0.5-1.0	.15	.37			
	14-19	---	---	35-50	1.15-1.40	0.42-1.41	0.07-0.11	3.0-5.5	0.0-0.5	.10	.20			
	19-36	---	---	35-50	1.15-1.40	0.42-1.41	0.07-0.11	3.0-5.0	0.0-0.5	.10	.20			
	36-47	---	---	35-50	1.15-1.40	0.42-1.41	0.07-0.11	3.0-5.0	0.0-0.5	.10	.20			
	47-60	---	---	25-40	1.25-1.40	1.41-4.23	0.09-0.11	0.0-2.9	0.0-0.5	.10	.28			
FyB: Furia-----	0-4	---	---	27-40	1.25-1.40	1.41-4.23	0.17-0.21	3.0-4.0	3.0-7.0	.15	.15	5	6	48
	4-16	---	---	35-40	1.15-1.35	1.41-4.23	0.17-0.21	3.0-5.0	3.0-7.0	.15	.15			
	16-32	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.20	3.0-5.5	2.0-6.0	.20	.20			
	32-43	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.20	3.0-5.5	2.0-6.0	.20	.20			
	43-72	---	---	30-40	1.15-1.35	1.41-4.23	0.17-0.21	3.0-4.5	1.0-5.0	.20	.20			
GA: Gulnare-----	0-2	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	1	5	56
	2-5	---	---	10-20	1.35-1.50	14.11-42.34	0.09-0.12	0.0-2.9	0.5-1.5	.28	.28			
	5-13	---	---	20-35	1.25-1.40	1.41-4.23	0.10-0.16	1.0-2.9	0.5-1.0	.15	.24			
	13-18	---	---	20-35	1.25-1.40	1.41-4.23	0.10-0.16	1.0-2.9	0.5-1.0	.15	.24			
	18-19	---	---	---	---	0.42-14.11	---	---	---	---	---			
	19-60	---	---	---	---	0.42-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
GA:														
Allens Park-----	0-5	---	---	5-20	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28	2	3	86
	5-10	---	---	10-20	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28			
	10-16	---	---	20-35	1.25-1.40	4.23-14.11	0.13-0.15	1.0-2.9	0.0-0.5	.20	.24			
	16-20	---	---	20-35	1.25-1.40	4.23-14.11	0.13-0.15	1.0-2.9	0.0-0.5	.20	.24			
	20-24	---	---	20-30	1.25-1.40	4.23-14.11	0.13-0.15	0.0-2.7	0.0-0.5	.20	.24			
	24-26	---	---	---	---	0.42-4.23	---	---	---	---	---			
	26-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
GC:														
Groomer-----	0-10	---	---	20-27	1.25-1.40	4.23-14.11	0.13-0.16	0.0-2.9	3.0-5.0	.20	.20	5	6	48
	10-21	---	---	35-40	1.25-1.40	1.41-4.23	0.14-0.18	3.0-5.9	1.0-3.0	.15	.24			
	21-39	---	---	40-50	1.15-1.30	0.42-1.41	0.13-0.15	6.0-8.9	0.0-1.0	.17	.17			
	39-50	---	---	40-50	1.15-1.30	0.42-1.41	0.13-0.15	6.0-7.9	0.0-0.5	.10	.17			
	50-66	---	---	30-40	1.15-1.30	0.42-1.41	0.13-0.16	3.0-5.9	0.0-0.5	.20	.37			
Cucharas-----	0-10	---	---	30-40	1.25-1.40	1.41-4.23	0.17-0.21	3.0-5.9	2.0-4.0	.17	.17	3	6	48
	10-26	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.16	6.0-8.9	0.5-2.0	.17	.17			
	26-32	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.16	6.0-8.9	0.5-2.0	.17	.17			
	32-42	---	---	---	---	0.01-0.42	---	---	---	---	---			
GgB:														
Glenberg-----	0-5	---	---	10-20	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	5-9	---	---	10-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	9-60	---	---	5-18	1.25-1.60	14.11-42.33	0.08-0.14	0.0-2.9	0.0-1.0	.32	.32			
GmE:														
Aquic Dystrocryepts--	0-11	---	---	10-20	1.25-1.40	4.23-14.11	0.10-0.14	0.0-2.9	2.0-10	.10	.20	5	6	48
	11-20	---	---	10-20	1.25-1.50	14.11-42.33	0.07-0.13	0.0-2.9	1.0-3.0	.15	.28			
	20-34	---	---	10-20	1.25-1.50	14.11-42.33	0.07-0.13	0.0-2.9	0.0-2.0	.15	.28			
	34-60	---	---	5-20	1.25-1.50	14.11-42.33	0.05-0.09	0.0-2.9	0.0-0.5	.10	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
Gn: Angostura-----	0-1	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	7	38
	1-12	---	---	10-20	1.25-1.40	14.11-42.34	0.07-0.09	0.0-2.9	0.5-1.0	.15	.37			
	12-24	---	---	15-25	1.25-1.40	4.23-14.11	0.07-0.11	0.0-2.9	0.0-0.5	.15	.43			
	24-46	---	---	20-30	1.25-1.40	4.23-14.11	0.07-0.11	0.5-2.9	0.0-0.5	.10	.28			
	46-61	---	---	20-30	1.25-1.40	4.23-14.11	0.07-0.11	0.5-2.9	0.0-0.5	.10	.28			
	61-72	---	---	20-30	1.25-1.40	4.23-14.11	0.07-0.11	0.0-2.9	0.0-0.5	.10	.28			
GP: Pits, gravel-----	0-72	---	---	0-2	---	141.14- 141.14	0.01-0.02	---	0.0-0.5	.02	.10	5	5	56
GR: Gulnare-----	0-2	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	1	5	56
	2-5	---	---	10-20	1.35-1.50	14.11-42.34	0.09-0.12	0.0-2.9	0.5-1.5	.28	.28			
	5-13	---	---	20-35	1.25-1.40	1.41-4.23	0.10-0.16	1.0-2.9	0.5-1.0	.15	.24			
	13-18	---	---	20-35	1.25-1.40	1.41-4.23	0.10-0.16	1.0-2.9	0.5-1.0	.15	.24			
	18-19	---	---	---	---	0.42-14.11	---	---	---	---	---			
	19-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
Hn: Hoehne-----	0-3	---	---	10-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	3-14	---	---	5-18	1.35-1.60	14.11-42.33	0.10-0.13	0.0-2.9	0.0-1.0	.28	.28			
	14-34	---	---	5-18	1.35-1.60	14.11-42.33	0.10-0.13	0.0-2.9	0.0-1.0	.28	.28			
	34-44	---	---	5-18	1.35-1.60	14.11-42.33	0.10-0.13	0.0-2.9	0.0-1.0	.28	.28			
	44-60	---	---	5-18	1.35-1.60	42.00-141.00	0.10-0.13	0.0-2.9	0.0-1.0	.28	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
HvA:														
Haversid-----	0-14	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	2.5-4.0	0.5-2.0	.43	.43	5	4L	86
	14-32	---	---	18-27	1.25-1.40	4.23-14.11	0.14-0.20	1.5-2.9	0.5-2.0	.37	.37			
	32-53	---	---	18-35	1.30-1.50	4.23-14.11	0.13-0.19	1.5-2.9	0.5-1.0	.37	.37			
	53-72	---	---	15-27	1.35-1.55	4.23-14.11	0.12-0.16	1.0-2.9	0.0-1.0	.32	.32			
HyD:														
Humbar Springs-----	0-7	---	---	18-27	1.25-1.45	4.23-14.11	0.10-0.14	0.0-2.9	2.0-4.0	.15	.24	5	5	56
	7-10	---	---	18-27	1.25-1.45	4.23-14.11	0.10-0.14	0.0-2.9	1.0-3.0	.20	.28			
	10-22	---	---	20-27	1.25-1.45	4.23-14.11	0.10-0.14	0.0-2.9	0.5-2.0	.10	.20			
	22-35	---	---	0-8	1.45-1.55	42.34-141.14	0.04-0.14	0.0-2.9	0.0-1.0	.10	.20			
	35-66	---	---	0-8	1.45-1.55	42.34-141.14	0.04-0.14	0.0-2.9	0.0-0.5	.10	.24			
K2D:														
Kimera-----	0-4	---	---	18-27	1.30-1.40	4.23-14.11	0.14-0.18	1.0-2.9	0.5-2.0	.37	.37	5	6	48
	4-11	---	---	20-30	1.30-1.40	4.23-14.11	0.14-0.20	1.5-3.5	0.5-1.0	.32	.32			
	11-38	---	---	20-30	1.30-1.50	4.23-14.11	0.10-0.18	1.5-3.5	0.5-1.0	.37	.37			
	38-60	---	---	20-27	1.30-1.50	4.23-42.00	0.10-0.18	1.0-2.9	0.5-1.0	.37	.37			
Chicosa-----	0-6	---	---	18-27	1.25-1.40	4.23-14.11	0.10-0.14	2.5-4.0	0.5-2.0	.15	.37	4	6	48
	6-16	---	---	20-27	1.25-1.40	4.23-14.11	0.07-0.09	2.0-3.0	0.5-1.0	.15	.37			
	16-28	---	---	18-27	1.35-1.50	14.11-42.33	0.06-0.08	0.0-1.6	0.0-0.5	.15	.32			
	28-42	---	---	8-18	1.35-1.50	14.11-42.33	0.06-0.08	0.0-1.6	0.0-0.5	.10	.24			
	42-60	---	---	2-7	1.35-1.60	42.34-141.14	0.02-0.04	0.0-0.2	0.0-0.5	.05	.17			
KI:														
Kandrix-----	0-6	---	---	18-27	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	0.5-2.0	.37	.37	5	6	48
	6-15	---	---	20-30	1.25-1.40	1.41-14.11	0.13-0.21	1.5-3.5	0.5-1.0	.28	.28			
	15-33	---	---	20-35	1.25-1.40	1.41-14.11	0.13-0.19	1.5-2.9	0.0-0.5	.37	.37			
	33-60	---	---	15-25	1.25-1.40	1.41-14.11	0.13-0.17	1.0-2.9	0.0-0.5	.37	.37			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
KI: Chicosa-----	0-6	---	---	18-27	1.25-1.40	4.23-14.11	0.10-0.14	2.5-4.0	0.5-2.0	.20	.37	1	5	56
	6-14	---	---	20-30	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	0.5-1.0	.15	.37			
	14-19	---	---	8-18	1.35-1.50	14.11-42.33	0.06-0.08	0.0-1.0	0.0-0.5	.10	.32			
	19-29	---	---	8-18	1.35-1.50	14.11-42.33	0.06-0.08	0.0-1.0	0.0-0.5	.10	.32			
	29-70	---	---	1-7	1.35-1.60	42.34-141.14	0.02-0.04	0.0-0.2	0.0-0.5	.05	.24			
Km: Kimera-----	0-6	---	---	18-27	1.30-1.45	4.23-14.11	0.14-0.18	1.0-2.9	0.5-2.0	.37	.37	5	6	48
	6-19	---	---	20-30	1.30-1.45	4.23-14.11	0.14-0.20	1.5-3.5	0.5-1.0	.32	.32			
	19-24	---	---	20-35	1.30-1.50	4.23-14.11	0.10-0.18	1.5-3.5	0.5-1.0	.37	.37			
	24-50	---	---	20-30	1.30-1.50	4.23-14.11	0.10-0.18	1.5-3.5	0.5-1.0	.37	.37			
	50-65	---	---	15-27	1.30-1.55	4.23-42.00	0.10-0.18	1.0-2.9	0.5-1.0	.37	.37			
KmC: Willid-----	0-6	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	1.5-2.9	1.0-2.0	.37	.37	5	6	48
	6-10	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	10-30	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	30-44	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	44-60	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	0.0-0.5	.49	.49			
Kimera-----	0-4	---	---	18-27	1.30-1.45	4.23-14.11	0.14-0.18	1.0-2.9	0.5-2.0	.37	.37	5	6	48
	4-15	---	---	20-30	1.30-1.45	4.23-14.11	0.14-0.20	1.5-3.5	0.5-1.0	.32	.32			
	15-28	---	---	20-35	1.30-1.50	4.23-14.11	0.10-0.18	1.5-3.5	0.5-1.0	.37	.37			
	28-47	---	---	20-35	1.30-1.50	4.23-14.11	0.10-0.18	1.5-3.5	0.2-0.8	.37	.37			
	47-57	---	---	20-30	1.20-1.45	4.23-14.11	0.12-0.18	1.5-2.9	0.0-0.5	.43	.43			
	57-65	---	---	15-27	1.30-1.50	4.23-42.00	0.10-0.18	1.0-2.9	0.0-0.5	.37	.37			



Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
KO:														
Kimera-----	0-6	---	---	15-20	1.40-1.55	4.23-14.11	0.13-0.15	1.0-2.9	0.5-2.0	.28	.28	5	3	86
	6-21	---	---	20-30	1.25-1.45	4.23-14.11	0.14-0.20	1.5-4.0	0.5-1.0	.32	.32			
	21-40	---	---	20-30	1.25-1.45	4.23-14.11	0.14-0.20	1.5-4.0	0.5-1.0	.32	.32			
	40-60	---	---	15-27	1.35-1.50	4.23-42.00	0.10-0.18	1.0-2.9	0.0-0.5	.37	.37			
Oterodry-----	0-11	---	---	5-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	11-25	---	---	5-18	1.35-1.50	14.11-42.33	0.10-0.15	0.0-2.9	0.0-1.0	.28	.28			
	25-60	---	---	5-18	1.35-1.50	14.11-42.33	0.10-0.15	0.0-2.9	0.0-1.0	.28	.28			
Kw:														
Kandrix-----	0-4	---	---	18-27	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	1.0-2.0	.32	.32	5	6	48
	4-12	---	---	20-30	1.25-1.40	4.23-14.11	0.13-0.21	1.5-3.5	0.5-1.0	.37	.37			
	12-28	---	---	20-30	1.25-1.35	4.23-14.11	0.15-0.19	1.5-3.5	0.5-1.0	.28	.28			
	28-36	---	---	20-30	1.25-1.45	4.23-14.11	0.13-0.17	1.5-3.5	0.0-0.5	.32	.32			
	36-66	---	---	15-24	1.25-1.45	4.23-42.34	0.13-0.17	1.0-2.9	0.0-0.5	.32	.32			
KwC:														
Kandrix-----	0-6	---	---	18-27	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-14	---	---	20-30	1.25-1.40	4.23-14.11	0.13-0.21	1.0-2.9	0.5-1.0	.37	.37			
	14-26	---	---	20-35	1.25-1.35	4.23-14.11	0.15-0.19	1.5-3.5	0.5-1.0	.28	.28			
	26-42	---	---	20-35	1.25-1.40	4.23-14.11	0.13-0.17	1.5-3.5	0.5-1.0	.37	.37			
	42-51	---	---	20-30	1.25-1.45	4.23-14.11	0.13-0.17	1.5-3.5	0.0-0.5	.37	.37			
	51-65	---	---	15-27	1.25-1.45	4.23-14.11	0.13-0.17	1.0-3.5	0.0-0.5	.24	.24			
Wiley-----	0-4	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	1.0-2.0	.37	.37	5	6	48
	4-9	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	9-15	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	15-26	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	26-35	---	---	20-35	1.15-1.30	1.41-14.11	0.15-0.21	1.5-3.5	0.0-1.0	.43	.43			
	35-44	---	---	20-35	1.15-1.30	1.41-14.11	0.15-0.21	1.0-2.9	0.0-1.0	.43	.43			
	44-72	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	0.0-0.5	.49	.49			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
<b>La:</b>														
Lanola-----	0-7	---	---	15-27	1.25-1.40	4.23-14.11	0.10-0.16	0.0-2.9	2.0-4.0	.24	.24	1	5	56
	7-12	---	---	18-30	1.25-1.40	4.23-14.11	0.10-0.16	0.0-2.9	0.5-2.0	.20	.37			
	12-40	---	---	---	---	0.01-1.41	---	---	---	---	---			
<b>Lb:</b>														
La Brier-----	0-5	---	---	27-35	1.15-1.25	1.41-4.23	0.16-0.20	1.0-2.9	3.0-5.0	.20	.20	5	6	48
	5-11	---	---	35-50	1.15-1.25	0.42-1.41	0.14-0.21	6.0-8.9	1.0-3.0	.24	.24			
	11-21	---	---	35-50	1.15-1.25	0.42-1.41	0.14-0.21	6.0-8.9	1.0-3.0	.24	.24			
	21-36	---	---	35-50	1.15-1.25	0.42-1.41	0.14-0.20	3.0-5.9	0.5-2.0	.28	.28			
	36-46	---	---	20-35	1.15-1.25	1.41-4.23	0.15-0.19	0.0-2.9	0.0-1.0	.37	.37			
	46-72	---	---	20-27	1.15-1.25	1.41-4.23	0.15-0.19	0.0-2.9	0.0-0.5	.37	.37			
<b>Ld:</b>														
Leadville-----	0-2	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	65-85	---	---	5	5	56
	2-16	---	---	10-20	1.35-1.50	14.11-42.34	0.07-0.11	0.0-2.9	0.0-1.0	.15	.28			
	16-22	---	---	10-20	1.35-1.50	14.11-21.17	0.05-0.07	0.0-2.9	0.0-0.5	.10	.32			
	22-48	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.11	1.0-2.9	0.0-0.5	.10	.24			
	48-65	---	---	20-30	1.25-1.40	4.23-14.11	0.05-0.07	1.0-2.9	0.0-0.5	.10	.24			
<b>LG:</b>														
Manzanst-----	0-3	---	---	27-40	1.15-1.30	1.41-4.23	0.17-0.21	3.0-5.9	1.0-2.0	.32	.32	5	6	48
	3-6	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	5.0-8.9	0.5-1.0	.28	.28			
	6-20	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-1.0	.28	.28			
	20-28	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-1.0	.28	.28			
	28-40	---	---	30-40	1.15-1.40	0.42-4.23	0.16-0.19	3.0-6.0	0.0-0.5	.32	.32			
	40-65	---	---	30-40	1.15-1.40	1.41-4.23	0.16-0.19	3.0-6.0	0.0-0.5	.32	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
LG: Ritoazul-----	0-3	---	---	35-45	1.15-1.30	0.42-1.41	0.17-0.21	3.0-5.9	1.0-2.0	.28	.28	3	4	86
	3-18	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.17	5.5-8.9	0.5-1.0	.20	.20			
	18-29	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.17	6.0-8.9	0.5-1.0	.20	.20			
	29-33	---	---	40-50	1.15-1.40	0.10-1.41	0.14-0.21	6.0-8.9	0.0-0.5	.28	.28			
	33-36	---	---	35-50	1.25-1.40	0.42-1.41	0.14-0.21	3.0-5.9	0.0-0.5	.28	.28			
	36-60	---	---	---	---	0.10-0.42	---	---	---	---	---			
LH: Leadville-----	0-2	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	65-85	---	---	5	5	56
	2-16	---	---	10-20	1.35-1.50	14.11-42.34	0.07-0.11	0.0-2.9	0.0-1.0	.15	.28			
	16-22	---	---	10-20	1.35-1.50	14.11-21.17	0.05-0.07	0.0-2.9	0.0-0.5	.10	.32			
	22-48	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.11	1.0-2.9	0.0-0.5	.10	.24			
	48-65	---	---	20-30	1.25-1.40	4.23-14.11	0.05-0.07	1.0-2.9	0.0-0.5	.10	.24			
Howlett-----	0-2	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	5	56
	2-14	---	---	10-20	1.35-1.50	14.11-42.34	0.08-0.10	0.0-2.9	0.0-1.0	.15	.28			
	14-23	---	---	20-35	1.25-1.40	4.23-14.11	0.10-0.12	1.5-2.9	0.0-0.5	.15	.24			
	23-47	---	---	20-35	1.25-1.40	4.23-14.11	0.10-0.12	1.5-2.9	0.0-0.5	.15	.24			
	47-65	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	0.0-0.5	.10	.24			
Lo: La Brier-----	0-5	---	---	27-35	1.15-1.25	1.41-4.23	0.16-0.20	1.0-2.9	3.0-5.0	.20	.20	5	6	48
	5-11	---	---	35-50	1.15-1.25	0.42-1.41	0.14-0.21	6.0-8.9	1.0-3.0	.24	.24			
	11-21	---	---	35-50	1.15-1.25	0.42-1.41	0.14-0.21	6.0-8.9	1.0-3.0	.24	.24			
	21-36	---	---	35-50	1.15-1.25	0.42-1.41	0.14-0.20	3.0-5.9	0.5-2.0	.28	.28			
	36-46	---	---	20-35	1.15-1.25	1.41-4.23	0.15-0.19	0.0-2.9	0.0-1.0	.37	.37			
	46-72	---	---	20-27	1.15-1.25	1.41-4.23	0.15-0.19	0.0-2.9	0.0-0.5	.37	.37			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
LoA:														
Limon-----	0-6	---	---	30-40	1.15-1.30	1.41-4.23	0.17-0.21	4.5-6.9	0.5-1.0	.32	.32	5	4L	86
	6-20	---	---	35-60	1.15-1.30	0.42-1.41	0.14-0.20	6.5-8.9	0.0-0.5	.32	.32			
	20-60	---	---	35-60	1.15-1.30	0.42-1.41	0.14-0.20	6.5-8.9	0.0-0.5	.32	.32			
LR:														
Fallriver-----	0-2	---	---	8-18	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	8	0
	2-16	---	---	8-18	1.35-1.50	14.11-42.33	0.03-0.04	0.0-2.5	0.5-1.0	.05	.28			
	16-30	---	---	8-18	1.35-1.50	14.11-42.33	0.03-0.04	0.0-2.7	0.0-0.5	.05	.32			
	30-70	---	---	3-18	1.35-1.60	14.11-42.33	0.03-0.07	0.0-1.0	0.0-0.5	.10	.28			
Rubble land-----	0-60	---	---	0-5	1.70-2.35	141.00- 141.00	0.00-0.10	0.0-2.9	0.0-0.1	---	---	--	8	0
LRT:														
Lorencito-----	0-4	---	---	35-40	1.25-1.40	0.42-1.41	0.13-0.15	3.0-5.9	0.5-2.0	.10	.20	2	5	56
	4-16	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	0.0-1.0	.20	.20			
	16-26	---	---	---	---	0.42-14.11	---	---	---	---	---			
Rombo-----	0-4	---	---	30-40	1.15-1.30	0.42-1.41	0.14-0.16	3.0-5.9	0.5-2.0	.17	.32	3	5	56
	4-22	---	---	35-50	1.15-1.30	0.42-1.41	0.13-0.19	6.0-7.5	0.5-1.0	.32	.28			
	22-34	---	---	35-50	1.20-1.35	0.42-1.41	0.13-0.19	6.0-7.5	0.0-0.5	.32	.32			
	34-44	---	---	---	---	0.01-0.42	---	---	---	---	---			
Sarcillo-----	0-5	---	---	15-30	1.25-1.40	4.23-14.11	0.14-0.18	0.0-2.9	0.5-2.0	.37	.37	1	5	56
	5-8	---	---	35-45	1.15-1.40	1.41-4.23	0.14-0.17	6.0-8.9	0.0-1.0	.24	.24			
	8-13	---	---	40-50	1.15-1.40	0.42-1.41	0.14-0.17	6.0-8.9	0.0-0.5	.24	.24			
	13-16	---	---	40-50	1.15-1.40	0.42-1.41	0.14-0.17	6.0-8.9	0.0-0.5	.24	.24			
	16-60	---	---	---	---	0.01-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
<b>Ls:</b>														
Las Animas-----	0-3	---	---	15-25	1.25-1.40	4.23-42.33	0.08-0.18	0.0-2.9	0.5-2.0	.24	.24	5	6	48
	3-11	---	---	5-18	1.25-1.40	14.11-42.33	0.06-0.20	0.0-2.9	0.5-1.0	.20	.20			
	11-23	---	---	5-18	1.15-1.60	14.11-42.33	0.06-0.20	0.0-2.9	0.5-1.0	.20	.20			
	23-26	---	---	5-18	1.15-1.60	14.11-42.33	0.15-0.20	0.0-2.9	0.5-1.0	.43	.43			
	26-36	---	---	3-15	1.15-1.60	14.11-42.33	0.05-0.08	0.0-2.0	0.0-1.0	.20	.20			
	36-65	---	---	0-7	1.45-1.60	42.33-141.10	0.05-0.08	0.0-1.0	0.0-0.5	.20	.20			
<b>LST:</b>														
Lorencito-----	0-4	---	---	35-40	1.25-1.40	0.42-1.41	0.13-0.15	3.0-5.9	0.5-2.0	.10	.20	2	5	56
	4-16	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.18	6.0-8.9	0.0-1.0	.20	.20			
	16-26	---	---	---	---	0.42-14.11	---	---	---	---	---			
<b>Sarcillo-----</b>	0-5	---	---	15-30	1.25-1.40	4.23-14.11	0.14-0.18	0.0-2.9	0.5-2.0	.37	.37	1	5	56
	5-8	---	---	35-45	1.15-1.40	1.41-4.23	0.14-0.17	6.0-8.9	0.0-1.0	.24	.24			
	8-13	---	---	40-50	1.15-1.40	0.42-1.41	0.14-0.17	6.0-8.9	0.0-0.5	.24	.24			
	13-16	---	---	40-50	1.15-1.40	0.42-1.41	0.14-0.17	6.0-8.9	0.0-0.5	.24	.24			
	16-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
<b>Trujillo-----</b>	0-9	---	---	15-20	1.30-1.45	14.11-42.34	0.14-0.16	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	9-13	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.16	1.5-2.9	1.0-2.0	.28	.28			
	13-20	---	---	20-35	1.25-1.40	4.23-14.11	0.14-0.16	1.5-3.5	0.5-1.5	.28	.28			
	20-36	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.16	1.5-3.5	0.5-1.0	.28	.28			
	36-58	---	---	15-27	1.35-1.50	4.23-42.34	0.10-0.14	0.5-2.9	0.5-1.0	.37	.37			
	58-70	---	---	15-27	1.35-1.50	4.23-42.34	0.10-0.14	0.5-2.9	0.5-1.0	.37	.37			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
Lt: Littlepine-----	0-1	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	3	86
	1-3	---	---	10-20	1.40-1.50	14.11-42.34	0.12-0.14	0.0-2.9	2.0-4.0	.24	.24			
	3-6	---	---	10-20	1.40-1.60	4.23-42.34	0.10-0.15	0.0-2.9	0.5-2.0	.28	.28			
	6-16	---	---	20-35	1.35-1.55	4.23-14.11	0.14-0.21	0.0-2.9	0.0-1.0	.20	.20			
	16-30	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.21	1.5-3.5	0.0-1.0	.20	.20			
	30-48	---	---	20-35	1.30-1.55	4.23-14.11	0.14-0.21	1.5-3.5	0.0-1.0	.20	.20			
	48-66	---	---	15-27	1.35-1.55	4.23-14.11	0.09-0.16	1.5-3.5	0.0-0.5	.32	.32			
	66-72	---	---	7-20	1.40-1.60	4.23-42.34	0.08-0.12	0.0-2.9	0.0-0.5	.28	.28			
LvD: Lorencito-----	0-8	---	---	30-40	1.25-1.40	1.41-4.23	0.16-0.20	3.0-5.9	0.5-2.0	.24	.24	2	6	48
	8-18	---	---	35-50	1.15-1.30	0.42-1.41	0.13-0.18	6.0-8.9	0.0-0.5	.32	.32			
	18-28	---	---	---	---	0.42-14.11	---	---	---	---	---			
LW: Littlepine-----	0-1	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	3	86
	1-3	---	---	10-20	1.40-1.50	14.11-42.34	0.12-0.14	0.0-2.9	2.0-4.0	.24	.24			
	3-6	---	---	10-20	1.40-1.60	4.23-42.34	0.10-0.15	0.0-2.9	0.5-2.0	.28	.28			
	6-16	---	---	20-35	1.35-1.55	4.23-14.11	0.14-0.21	0.0-2.9	0.0-1.0	.20	.20			
	16-30	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.21	1.5-3.5	0.0-1.0	.20	.20			
	30-48	---	---	20-35	1.30-1.55	4.23-14.11	0.14-0.21	1.5-3.5	0.0-1.0	.20	.20			
	48-66	---	---	15-27	1.35-1.55	4.23-14.11	0.09-0.16	1.5-3.5	0.0-0.5	.32	.32			
	66-72	---	---	7-20	1.40-1.60	4.23-42.34	0.08-0.12	0.0-2.9	0.0-0.5	.28	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
LW: Wahatoya-----	0-1	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	2	3	86
	1-3	---	---	10-20	1.35-1.50	14.11-42.34	0.10-0.12	0.0-2.9	0.5-2.0	.28	.28			
	3-9	---	---	10-20	1.35-1.50	14.11-42.34	0.10-0.14	0.0-2.9	0.5-1.0	.28	.28			
	9-21	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.11	1.0-2.9	0.5-1.0	.10	.24			
	21-31	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.11	0.0-2.9	0.5-1.0	.10	.24			
	31-36	---	---	15-30	1.25-1.40	4.23-14.11	0.05-0.09	0.0-2.9	0.0-1.0	.10	.24			
	36-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
MaB: Mauricanyon, warm----	0-4	---	---	15-27	1.30-1.45	4.23-14.11	0.14-0.18	1.5-2.9	3.0-5.0	.20	.20	5	6	48
	4-26	---	---	18-27	1.30-1.45	4.23-14.11	0.14-0.18	1.5-3.5	2.0-4.0	.24	.24			
	26-40	---	---	20-27	1.30-1.45	4.23-14.11	0.14-0.18	1.5-3.5	1.0-3.0	.24	.24			
	40-68	---	---	18-27	1.30-1.50	4.23-14.11	0.12-0.18	1.5-2.9	1.0-3.0	.28	.28			
MaW: Mauricanyon, wet-----	0-6	---	---	27-35	1.30-1.45	4.23-14.11	0.16-0.20	3.0-5.0	3.0-5.0	.20	.20	5	6	48
	6-12	---	---	27-40	1.30-1.45	1.41-4.23	0.16-0.20	1.5-3.5	2.0-4.0	.20	.20			
	12-23	---	---	27-35	1.30-1.50	4.23-14.11	0.16-0.20	1.5-3.5	1.0-3.0	.24	.24			
	23-34	---	---	18-27	1.30-1.50	4.23-14.11	0.12-0.18	1.5-2.9	1.0-3.0	.20	.20			
	34-44	---	---	18-27	1.25-1.50	4.23-14.11	0.14-0.18	1.0-2.9	1.0-3.0	.32	.32			
	44-65	---	---	18-27	1.25-1.50	4.23-14.11	0.14-0.18	1.0-2.9	1.0-3.0	.32	.32			
MD: Dumps, mine-----	0-60	---	---	---	---	42.34-141.14	0.00-0.02	---	---	---	---	--	8	0

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
Mf:														
Moran-----	0-6	---	---	12-18	1.35-1.50	14.11-42.33	0.05-0.08	0.0-2.9	2.0-6.0	.05	.15	5	6	48
	6-17	---	---	12-18	1.35-1.50	14.11-42.33	0.05-0.08	0.0-2.9	2.0-6.0	.05	.15			
	17-30	---	---	15-18	1.35-1.50	14.11-42.33	0.05-0.08	0.0-2.9	1.0-4.0	.10	.24			
	30-40	---	---	8-15	1.25-1.40	14.11-42.33	0.05-0.07	0.0-2.9	0.0-0.5	.10	.32			
	40-60	---	---	6-15	1.35-1.50	14.11-42.33	0.03-0.04	0.0-2.9	0.0-0.5	.05	.32			
MG:														
Tercio-----	0-2	---	---	18-27	0.20-1.00	100.00- 600.00	0.15-0.45	---	70-95	---	---	5	7	38
	2-10	---	---	18-27	1.25-1.40	4.23-14.11	0.10-0.14	0.0-2.9	0.5-1.0	.20	.37			
	10-16	---	---	27-40	1.25-1.40	0.42-4.23	0.13-0.15	3.0-5.9	0.0-0.5	.15	.28			
	16-30	---	---	40-55	1.15-1.30	0.10-0.42	0.10-0.12	3.0-5.9	0.0-0.5	.10	.17			
	30-38	---	---	40-55	1.15-1.30	0.42-1.41	0.10-0.12	3.0-5.9	0.0-0.5	.10	.17			
	38-60	---	---	35-55	1.25-1.40	1.41-4.23	0.10-0.16	0.0-2.9	0.0-0.5	.10	.24			
Graneros-----	0-1	---	---	18-27	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	3	7	38
	1-3	---	---	18-27	1.25-1.40	4.23-14.11	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28			
	3-7	---	---	20-27	1.25-1.40	4.23-14.11	0.10-0.13	0.0-2.9	0.5-1.0	.20	.37			
	7-13	---	---	35-45	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.9	0.0-0.5	.15	.24			
	13-23	---	---	35-45	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.9	0.0-0.5	.15	.24			
	23-32	---	---	35-45	1.15-1.30	0.42-1.41	0.16-0.20	3.0-5.9	0.0-0.5	.37	.37			
	32-60	---	---	---	---	0.10-14.11	---	---	---	---	---			
MGR:														
Midway, moist-----	0-5	---	---	30-45	1.25-1.40	1.41-4.23	0.17-0.20	3.0-5.9	0.5-2.0	.24	.24	2	4	86
	5-14	---	---	35-50	1.20-1.35	0.42-1.41	0.14-0.18	6.0-8.9	0.0-0.5	.24	.24			
	14-60	---	---	---	---	0.42-1.41	---	---	---	---	---			



Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
MGR:														
Ritoazul-----	0-3	---	---	35-45	1.15-1.30	0.42-1.41	0.17-0.21	3.0-5.9	1.0-2.0	.28	.28	3	4	86
	3-18	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.17	5.5-8.9	0.5-1.0	.20	.20			
	18-29	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.17	6.0-8.9	0.5-1.0	.20	.20			
	29-33	---	---	40-50	1.15-1.40	0.10-1.41	0.14-0.21	6.0-8.9	0.0-0.5	.28	.28			
	33-36	---	---	35-50	1.25-1.40	0.42-1.41	0.14-0.21	3.0-5.9	0.0-0.5	.28	.28			
	36-60	---	---	---	---	0.10-0.42	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
MI:														
Minqwet-----	0-6	---	---	20-27	1.15-1.30	4.23-14.11	0.14-0.18	1.0-2.9	0.5-2.0	.43	.43	3	4L	86
	6-14	---	---	20-35	1.25-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-0.5	.43	.43			
	14-21	---	---	20-35	1.25-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-0.5	.43	.43			
	21-30	---	---	20-35	1.25-1.30	1.41-4.23	0.16-0.20	1.0-3.5	0.0-0.5	.43	.43			
	30-45	---	---	---	---	1.41-4.23	---	---	---	---	---			
Wiley-----	0-4	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	1.0-2.0	.37	.37	5	6	48
	4-9	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	9-15	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	15-26	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	26-35	---	---	20-35	1.15-1.30	1.41-14.11	0.15-0.21	1.5-3.5	0.0-1.0	.43	.43			
	35-44	---	---	20-35	1.15-1.30	1.41-14.11	0.15-0.21	1.0-2.9	0.0-1.0	.43	.43			
	44-72	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	0.0-0.5	.49	.49			
MIK:														
Midway-----	0-4	---	---	35-40	1.25-1.40	0.42-1.41	0.17-0.20	4.5-6.9	0.5-2.0	.24	.24	2	4L	86
	4-10	---	---	35-50	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	10-18	---	---	35-50	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	18-39	---	---	---	---	0.42-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
MIK: Chicosa-----	0-6	---	---	18-27	1.25-1.40	4.23-14.11	0.10-0.14	2.5-4.0	0.5-2.0	.20	.37	2	7	38
	6-20	---	---	20-30	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	0.5-1.0	.15	.37			
	20-37	---	---	8-18	1.35-1.50	14.11-42.33	0.06-0.08	0.0-1.0	0.0-0.5	.10	.32			
	37-72	---	---	1-7	1.35-1.60	42.34-141.14	0.02-0.04	0.0-0.2	0.0-0.5	.05	.24			
MnA: Manzanst-----	0-3	---	---	27-40	1.15-1.30	1.41-4.23	0.17-0.21	3.0-5.9	1.0-2.0	.32	.32	5	6	48
	3-6	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	5.0-8.9	0.5-1.0	.28	.28			
	6-20	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-1.0	.28	.28			
	20-28	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-1.0	.28	.28			
	28-40	---	---	30-40	1.15-1.40	0.42-4.23	0.16-0.19	3.0-6.0	0.0-0.5	.32	.32			
	40-65	---	---	30-40	1.15-1.40	1.41-4.23	0.16-0.19	3.0-6.0	0.0-0.5	.32	.32			
MnB: Manzanst-----	0-3	---	---	27-40	1.15-1.30	1.41-4.23	0.17-0.21	3.0-5.9	1.0-2.0	.32	.32	5	6	48
	3-6	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	5.0-8.9	0.5-1.0	.28	.28			
	6-20	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-1.0	.28	.28			
	20-28	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-1.0	.28	.28			
	28-40	---	---	30-40	1.15-1.40	0.42-4.23	0.16-0.19	3.0-6.0	0.0-0.5	.32	.32			
	40-65	---	---	30-40	1.15-1.40	1.41-4.23	0.16-0.19	3.0-6.0	0.0-0.5	.32	.32			
MnW: Aquic Haplustalfs----	0-3	---	---	27-40	1.15-1.30	1.41-4.23	0.17-0.21	3.0-5.9	1.0-2.0	.32	.32	5	6	48
	3-6	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	5.0-8.9	0.5-2.0	.28	.28			
	6-18	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-1.0	.28	.28			
	18-30	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-1.0	.28	.28			
	30-36	---	---	27-35	1.15-1.40	0.42-4.23	0.16-0.19	3.0-6.0	0.0-0.5	.32	.32			
	36-66	---	---	15-27	1.15-1.40	1.41-4.23	0.16-0.19	3.0-6.0	0.0-0.5	.32	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
MoA:														
Mauricanyon-----	0-3	---	---	15-27	1.30-1.45	4.23-14.11	0.14-0.18	1.0-3.5	3.0-5.0	.20	.20	5	6	48
	3-8	---	---	20-30	1.30-1.45	4.23-14.11	0.14-0.18	1.5-3.5	2.0-4.0	.24	.24			
	8-25	---	---	20-35	1.30-1.50	4.23-14.11	0.15-0.21	1.5-3.5	1.0-3.0	.24	.24			
	25-72	---	---	15-30	1.30-1.50	4.23-14.11	0.14-0.18	1.0-2.9	0.5-2.0	.28	.28			
MoB:														
Mauricanyon, dry----	0-10	---	---	15-27	1.30-1.45	4.23-14.11	0.14-0.18	1.5-3.5	3.0-5.0	.20	.20	5	6	48
	10-21	---	---	18-27	1.30-1.45	4.23-14.11	0.14-0.18	1.5-3.5	2.0-4.0	.24	.24			
	21-28	---	---	20-27	1.30-1.50	4.23-14.11	0.14-0.18	1.5-3.5	1.0-3.0	.24	.24			
	28-40	---	---	20-27	1.30-1.50	4.23-14.11	0.14-0.18	1.5-3.5	1.0-3.0	.24	.24			
	40-68	---	---	18-27	1.30-1.50	4.23-14.11	0.12-0.18	1.5-2.9	1.0-3.0	.28	.28			
MoR:														
Mion-----	0-4	---	---	20-27	1.25-1.40	4.23-14.11	0.17-0.20	3.0-5.9	0.5-2.0	.32	.32	2	6	48
	4-14	---	---	35-45	1.20-1.35	0.42-1.41	0.14-0.18	6.0-8.9	0.0-0.5	.24	.24			
	14-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-0.42	---	---	---	---	---	--	---	---
MP:														
Midway-----	0-5	---	---	30-40	1.25-1.40	1.41-4.23	0.17-0.20	4.5-6.9	0.5-2.0	.24	.24	2	6	48
	5-12	---	---	35-45	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	12-60	---	---	---	---	0.42-1.41	0.00-0.00	---	---	---	---			
Razor-----	0-5	---	---	27-40	1.15-1.30	0.42-4.23	0.17-0.21	4.5-6.9	0.5-2.0	.32	.32	3	4	86
	5-15	---	---	35-60	1.15-1.30	0.42-1.41	0.14-0.21	7.0-8.9	0.5-1.0	.24	.24			
	15-21	---	---	35-60	1.15-1.30	0.42-1.41	0.14-0.21	7.0-8.9	0.5-1.0	.24	.24			
	21-29	---	---	35-60	1.15-1.30	0.42-1.41	0.14-0.21	7.0-8.9	0.0-0.5	.28	.28			
	29-60	---	---	---	---	0.10-0.42	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
MR:														
Mirror-----	0-10	---	---	10-18	1.25-1.40	14.11-42.33	0.04-0.05	0.0-2.9	3.0-7.0	.05	.24	2	8	0
	10-25	---	---	10-18	1.30-1.50	14.11-42.33	0.03-0.05	0.0-2.9	0.5-3.0	.05	.24			
	25-60	---	---	---	---	0.10-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
MvC:														
Manvel-----	0-4	---	---	15-27	1.20-1.35	4.23-14.11	0.16-0.20	1.5-2.9	0.5-2.0	.43	.43	5	4L	86
	4-12	---	---	18-35	1.30-1.45	4.23-14.11	0.14-0.18	1.5-3.5	0.0-1.0	.43	.43			
	12-60	---	---	18-35	1.30-1.45	4.23-14.11	0.14-0.18	1.5-3.5	0.0-1.0	.43	.43			
MyD:														
Midway-----	0-3	---	---	35-40	1.25-1.40	0.42-1.41	0.17-0.20	4.5-6.9	0.5-2.0	.24	.24	2	4L	86
	3-8	---	---	35-50	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	8-14	---	---	35-50	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	14-24	---	---	---	---	0.42-1.41	---	---	---	---	---			
MzA:														
Manzanola-----	0-3	---	---	27-40	1.15-1.30	1.41-4.23	0.17-0.21	4.5-6.9	1.0-3.0	.28	.28	4	4L	86
	3-10	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.20	5.5-8.9	0.5-1.0	.32	.32			
	10-16	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.20	5.5-8.9	0.5-1.0	.32	.32			
	16-27	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.20	5.5-8.9	0.5-1.0	.32	.32			
	27-32	---	---	30-40	1.15-1.30	0.42-1.41	0.14-0.18	5.5-7.5	0.0-0.5	.37	.37			
	32-38	---	---	30-40	1.15-1.30	1.41-4.23	0.14-0.18	4.5-6.9	0.0-0.5	.37	.37			
	38-67	---	---	27-40	1.15-1.30	1.41-4.23	0.14-0.18	4.5-6.9	0.0-0.5	.37	.37			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
<b>MzB:</b>														
Manzanola-----	0-5	---	---	27-40	1.15-1.30	1.41-4.23	0.17-0.21	4.5-6.9	0.5-2.0	.32	.32	5	4L	86
	5-17	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.20	4.5-8.9	0.5-1.0	.32	.32			
	17-30	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.20	6.0-8.9	0.5-1.0	.32	.32			
	30-50	---	---	30-40	1.15-1.30	1.41-4.23	0.17-0.21	6.0-7.9	0.0-0.5	.37	.37			
	50-70	---	---	30-40	1.15-1.30	1.41-4.23	0.17-0.21	4.5-6.9	0.0-0.5	.37	.37			
<b>NM:</b>														
Nopurg-----	0-1	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	4	5	56
	1-12	---	---	10-20	1.35-1.50	14.11-42.34	0.07-0.10	0.0-2.9	0.5-1.0	.15	.28			
	12-24	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	0.0-0.5	.10	.24			
	24-35	---	---	35-50	1.15-1.40	0.42-1.41	0.07-0.09	3.0-5.9	0.0-0.5	.05	.17			
	35-72	---	---	35-50	1.15-1.40	0.42-1.41	0.07-0.09	3.0-5.9	0.0-0.5	.05	.17			
<b>Mitotes-----</b>	0-1	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	4	3	86
	1-15	---	---	10-20	1.35-1.50	4.23-14.11	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28			
	15-21	---	---	20-35	1.25-1.40	1.41-4.23	0.10-0.14	0.0-2.9	0.5-1.0	.10	.20			
	21-32	---	---	35-50	1.25-1.40	0.42-1.41	0.10-0.16	3.0-5.9	0.0-0.5	.15	.20			
	32-51	---	---	35-50	1.25-1.40	0.42-1.41	0.10-0.16	3.0-5.9	0.0-0.5	.15	.20			
	51-72	---	---	8-20	1.35-1.50	4.23-14.11	0.07-0.09	0.0-2.9	0.0-0.5	.17	.32			
<b>OeC:</b>														
Otero-----	0-3	---	---	10-20	1.35-1.50	14.11-42.34	0.09-0.13	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	3-10	---	---	10-20	1.35-1.50	14.11-42.34	0.09-0.13	0.0-2.9	0.5-2.0	.28	.28			
	10-19	---	---	5-18	1.35-1.50	14.11-42.34	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32			
	19-30	---	---	5-18	1.35-1.50	14.11-42.34	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32			
	30-40	---	---	5-18	1.35-1.50	14.11-42.34	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32			
	40-65	---	---	5-18	1.35-1.50	14.11-42.34	0.09-0.13	0.0-2.9	0.0-0.5	.32	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
OtD: Oterodry-----	0-11	---	---	5-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	11-25	---	---	5-18	1.35-1.50	14.11-42.33	0.10-0.15	0.0-2.9	0.0-1.0	.28	.28			
	25-60	---	---	5-18	1.35-1.50	14.11-42.33	0.10-0.15	0.0-2.9	0.0-1.0	.28	.28			
OyB: Olnest-----	0-4	---	---	12-17	1.35-1.50	14.11-42.33	0.10-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	4-14	---	---	20-32	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	0.5-1.0	.20	.20			
	14-20	---	---	20-32	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	0.5-1.0	.20	.20			
	20-28	---	---	12-30	1.25-1.50	4.23-14.11	0.10-0.20	0.5-2.9	0.0-1.0	.24	.24			
	28-48	---	---	12-30	1.25-1.50	4.23-14.11	0.10-0.20	0.5-2.9	0.0-1.0	.24	.24			
	48-60	---	---	12-20	1.15-1.50	4.23-42.33	0.13-0.20	0.5-2.9	0.0-0.5	.32	.32			
OyC: Olnest-----	0-4	---	---	12-17	1.35-1.50	14.11-42.33	0.10-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	4-14	---	---	20-32	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	0.5-1.0	.20	.20			
	14-20	---	---	20-32	1.25-1.40	4.23-14.11	0.14-0.18	1.0-2.9	0.5-1.0	.20	.20			
	20-28	---	---	12-30	1.25-1.50	4.23-14.11	0.10-0.20	0.5-2.9	0.0-1.0	.24	.24			
	28-48	---	---	12-30	1.25-1.50	4.23-14.11	0.10-0.20	0.5-2.9	0.0-1.0	.24	.24			
	48-60	---	---	12-20	1.15-1.50	4.23-42.33	0.13-0.20	0.5-2.9	0.0-0.5	.32	.32			
PeD: Penrose-----	0-5	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.5-1.0	.37	.37	1	4L	86
	5-9	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.2-0.8	.37	.37			
	9-15	---	---	18-30	1.30-1.45	4.23-14.11	0.16-0.20	1.0-2.9	0.0-1.0	.32	.32			
	15-26	---	---	---	---	0.42-1.41	---	---	---	---	---			
PeF: Penrose-----	0-5	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.5-1.0	.37	.37	1	4L	86
	5-9	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.2-0.8	.37	.37			
	9-15	---	---	18-30	1.30-1.45	4.23-14.11	0.16-0.20	1.0-2.9	0.0-1.0	.32	.32			
	15-26	---	---	---	---	0.42-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
PeF:														
Midway-----	0-3	---	---	30-45	1.25-1.40	1.41-4.23	0.17-0.20	4.5-6.9	0.5-2.0	.24	.24	2	4	86
	3-10	---	---	35-45	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	10-13	---	---	35-45	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	13-40	---	---	---	---	0.42-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
PM:														
Penrose-----	0-5	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.5-1.0	.37	.37	1	4L	86
	5-9	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.2-0.8	.37	.37			
	9-15	---	---	18-30	1.30-1.45	4.23-14.11	0.16-0.20	1.0-2.9	0.0-1.0	.32	.32			
	15-26	---	---	---	---	0.42-1.41	---	---	---	---	---			
Minnequa-----	0-4	---	---	18-27	1.25-1.40	4.23-14.11	0.14-0.18	1.0-3.5	0.5-2.0	.43	.43	3	4L	86
	4-14	---	---	18-35	1.25-1.40	4.23-14.11	0.13-0.17	1.0-3.5	0.0-0.5	.43	.43			
	14-24	---	---	18-35	1.25-1.40	4.23-14.11	0.13-0.17	1.0-3.5	0.0-0.5	.43	.43			
	24-29	---	---	---	---	1.41-4.23	0.01-0.03	---	---	---	---			
	29-60	---	---	---	---	1.41-4.23	---	---	---	---	---			
PnD:														
Penrose, moist-----	0-4	---	---	15-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.5-1.0	.37	.37	1	4L	86
	4-10	---	---	18-27	1.30-1.45	4.23-14.11	0.16-0.20	0.0-2.5	0.0-1.0	.32	.32			
	10-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
RaB:														
Ravine-----	0-3	---	---	27-35	1.15-1.30	4.23-14.11	0.16-0.20	4.5-6.9	0.5-2.0	.32	.32	3	6	48
	3-14	---	---	35-60	1.15-1.30	0.42-1.41	0.14-0.21	7.0-8.9	0.5-1.0	.24	.24			
	14-21	---	---	40-60	1.15-1.30	0.42-1.41	0.14-0.21	7.0-8.9	0.5-1.0	.24	.24			
	21-28	---	---	40-60	1.15-1.30	0.42-1.41	0.14-0.21	7.0-8.9	0.0-0.5	.28	.28			
	28-60	---	---	---	---	0.42-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
RaC: Ritoazul-----	0-3	---	---	35-45	1.15-1.30	0.42-1.41	0.17-0.21	3.0-5.9	1.0-2.0	.28	.28	3	4	86
	3-18	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.17	5.5-8.9	0.5-1.0	.20	.20			
	18-29	---	---	40-55	1.15-1.30	0.10-0.42	0.14-0.17	6.0-8.9	0.5-1.0	.20	.20			
	29-33	---	---	40-50	1.15-1.40	0.10-1.41	0.14-0.21	6.0-8.9	0.0-0.5	.28	.28			
	33-36	---	---	35-50	1.25-1.40	0.42-1.41	0.14-0.21	3.0-5.9	0.0-0.5	.28	.28			
	36-60	---	---	---	---	0.10-0.42	---	---	---	---	---			
RB: Raton-----	0-6	---	---	20-27	1.25-1.40	4.23-14.11	0.10-0.14	0.0-2.9	2.0-4.0	.15	.24	1	7	38
	6-9	---	---	27-40	1.25-1.40	1.41-4.23	0.09-0.11	0.0-2.9	1.0-3.0	.05	.20			
	9-17	---	---	40-55	1.30-1.40	0.42-1.41	0.07-0.09	1.0-4.5	0.5-2.0	.05	.17			
	17-60	---	---	---	---	0.01-0.40	---	---	---	---	---			
Barela-----	0-5	---	---	15-25	1.15-1.30	14.11-42.34	0.14-0.18	0.0-2.9	3.0-7.0	.28	.28	3	6	48
	5-11	---	---	20-27	1.15-1.30	4.23-14.11	0.11-0.15	0.0-2.9	2.0-4.0	.24	.37			
	11-16	---	---	27-55	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.9	0.5-2.0	.15	.28			
	16-20	---	---	35-55	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.9	0.5-1.0	.15	.28			
	20-30	---	---	35-55	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.5	0.5-1.0	.15	.28			
	30-36	---	---	35-55	1.15-1.40	0.42-1.41	0.12-0.16	3.0-5.5	0.5-1.0	.15	.28			
	36-48	---	---	35-50	1.15-1.30	0.42-1.41	0.06-0.10	0.0-2.7	0.0-0.5	.15	.24			
	48-60	---	---	---	---	0.10-0.40	---	---	---	---	---			
Rc: Raku-----	0-8	---	---	20-27	1.15-1.30	4.23-14.11	0.15-0.20	2.0-2.9	1.0-3.0	.37	.37	5	6	48
	8-11	---	---	35-50	1.15-1.30	1.41-4.23	0.14-0.21	6.0-8.9	0.5-2.0	.32	.32			
	11-22	---	---	35-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-2.0	.32	.32			
	22-28	---	---	35-50	1.15-1.30	0.42-1.41	0.17-0.21	6.0-8.9	0.5-1.0	.32	.32			
	28-45	---	---	35-50	1.15-1.30	1.41-4.23	0.17-0.21	3.0-5.9	0.5-1.0	.32	.32			
	45-68	---	---	18-35	1.25-1.30	1.41-4.23	0.15-0.21	3.0-5.9	0.5-1.0	.43	.43			



Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
RcA:														
Raku-----	0-3	---	---	27-35	1.15-1.30	1.41-4.23	0.15-0.20	3.0-5.9	1.0-3.0	.28	.28	5	6	48
	3-11	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	1.0-3.0	.15	.15			
	11-18	---	---	40-50	1.15-1.30	0.42-1.41	0.14-0.21	6.0-8.9	0.5-2.0	.17	.17			
	18-34	---	---	40-50	1.15-1.30	0.42-1.41	0.17-0.21	6.0-8.9	0.5-1.0	.17	.17			
	34-41	---	---	40-50	1.15-1.30	0.42-1.41	0.17-0.21	6.0-8.9	0.5-1.0	.17	.17			
	41-48	---	---	18-35	1.25-1.30	1.41-4.23	0.15-0.21	3.0-5.9	0.5-1.0	.28	.28			
	48-66	---	---	18-35	1.25-1.30	1.41-4.23	0.15-0.21	3.0-5.9	0.5-1.0	.49	.49			
Rd:														
Romound-----	0-4	---	---	15-27	1.20-1.35	4.23-14.11	0.15-0.20	2.0-3.5	0.5-2.0	.43	.43	3	4L	86
	4-14	---	---	18-27	1.30-1.45	4.23-14.11	0.14-0.20	1.0-2.9	0.5-1.0	.43	.43			
	14-24	---	---	5-25	1.30-1.45	4.23-14.11	0.12-0.16	1.0-2.9	0.0-0.5	.43	.43			
	24-30	---	---	5-25	1.35-1.50	4.23-14.11	0.12-0.16	0.5-2.9	0.0-0.5	.43	.43			
	30-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
RF:														
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
Rubble land-----	0-60	---	---	0-5	1.70-2.35	141.00- 141.00	0.00-0.10	0.0-2.9	0.0-0.1	---	---	--	8	0
Rt:														
Raton-----	0-6	---	---	20-27	1.25-1.40	4.23-14.11	0.10-0.14	0.0-2.9	2.0-4.0	.15	.24	1	7	38
	6-9	---	---	27-40	1.25-1.40	1.41-4.23	0.09-0.11	0.0-2.9	1.0-3.0	.05	.20			
	9-17	---	---	40-55	1.30-1.40	0.42-1.41	0.07-0.09	1.0-4.5	0.5-2.0	.05	.17			
	17-60	---	---	---	---	0.01-0.40	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
RyC:														
Ryegate-----	0-10	---	---	5-20	1.35-1.55	4.23-14.11	0.10-0.14	0.0-2.9	2.0-4.0	.20	.20	2	3	86
	10-21	---	---	20-35	1.30-1.45	1.41-4.23	0.14-0.18	1.0-3.5	0.5-1.0	.20	.20			
	21-30	---	---	20-35	1.30-1.45	1.41-4.23	0.14-0.18	1.0-2.9	0.5-1.0	.20	.20			
	30-32	---	---	20-35	1.30-1.45	1.41-4.23	0.14-0.18	1.0-2.9	0.5-1.0	.20	.20			
	32-34	---	---	10-20	1.35-1.55	4.23-14.11	0.07-0.13	1.0-2.9	0.0-0.5	.20	.37			
	34-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
RzD:														
Rizozo, moist-----	0-4	---	---	10-20	1.35-1.50	4.23-42.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.32	1	5	56
	4-11	---	---	10-25	1.25-1.50	4.23-14.11	0.10-0.13	0.0-2.9	0.0-0.5	.20	.37			
	11-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
Sc:														
Schwacheim-----	0-5	---	---	20-27	1.15-1.30	4.23-14.11	0.11-0.15	0.0-2.9	2.0-5.0	.15	.28	1	7	38
	5-9	---	---	20-27	1.15-1.30	4.23-14.11	0.08-0.10	0.0-2.9	1.0-4.0	.15	.37			
	9-14	---	---	20-35	1.15-1.30	4.23-14.11	0.04-0.06	0.0-2.9	1.0-4.0	.05	.32			
	14-18	---	---	---	---	0.01-0.40	---	---	---	---	---			
ScR:														
Schwacheim-----	0-5	---	---	20-27	1.15-1.30	4.23-14.11	0.11-0.15	0.0-2.9	2.0-5.0	.15	.28	1	7	38
	5-9	---	---	20-27	1.15-1.30	4.23-14.11	0.08-0.10	0.0-2.9	1.0-4.0	.15	.37			
	9-14	---	---	20-35	1.15-1.30	4.23-14.11	0.04-0.06	0.0-2.9	1.0-4.0	.05	.32			
	14-18	---	---	---	---	0.01-0.40	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
SG:														
Ovmesa-----	0-2	---	---	10-20	1.30-1.45	4.23-14.11	0.15-0.20	1.0-2.9	1.0-2.0	.43	.43	2	4L	86
	2-9	---	---	10-18	1.35-1.55	4.23-14.11	0.12-0.18	0.0-2.9	0.0-0.5	.37	.37			
	9-14	---	---	---	---	0.42-1.41	---	---	---	---	---			
	14-40	---	---	---	---	0.10-1.41	---	---	---	---	---			
Romound-----	0-4	---	---	15-27	1.20-1.35	4.23-14.11	0.15-0.20	2.0-3.5	0.5-2.0	.43	.43	3	4L	86
	4-14	---	---	18-27	1.30-1.45	4.23-14.11	0.14-0.20	1.0-2.9	0.5-1.0	.43	.43			
	14-24	---	---	5-25	1.30-1.45	4.23-14.11	0.12-0.16	1.0-2.9	0.0-0.5	.43	.43			
	24-30	---	---	5-25	1.35-1.50	4.23-14.11	0.12-0.16	0.5-2.9	0.0-0.5	.43	.43			
	30-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
ShD:														
Shingle-----	0-4	---	---	27-35	1.30-1.45	4.23-14.11	0.17-0.20	1.5-3.5	0.5-1.0	.24	.24	2	4L	86
	4-11	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.18	1.5-3.5	0.5-1.0	.32	.32			
	11-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
Penrose-----	0-5	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.5-1.0	.37	.37	1	4L	86
	5-9	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	0.2-0.8	.37	.37			
	9-15	---	---	18-30	1.30-1.45	4.23-14.11	0.16-0.20	1.0-2.9	0.0-1.0	.32	.32			
	15-26	---	---	---	---	0.42-1.41	---	---	---	---	---			
SL:														
Scandard-----	0-1	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	2	5	56
	1-7	---	---	10-20	1.35-1.50	14.11-42.34	0.07-0.11	0.0-2.9	1.0-3.0	.15	.24			
	7-11	---	---	10-20	1.35-1.50	14.11-42.34	0.05-0.07	0.0-2.9	0.5-1.0	.10	.28			
	11-18	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	0.0-0.5	.10	.24			
	18-25	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.09	0.0-2.9	0.0-0.5	.10	.24			
	25-27	---	---	---	---	0.42-4.23	---	---	---	---	---			
	27-60	---	---	---	---	0.01-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
SL:														
Leadville-----	0-2	---	---	10-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	65-85	---	---	5	5	56
	2-16	---	---	10-20	1.35-1.50	14.11-42.34	0.07-0.11	0.0-2.9	0.0-1.0	.15	.28			
	16-22	---	---	10-20	1.35-1.50	14.11-21.17	0.05-0.07	0.0-2.9	0.0-0.5	.10	.32			
	22-48	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.11	1.0-2.9	0.0-0.5	.10	.24			
	48-65	---	---	20-30	1.25-1.40	4.23-14.11	0.05-0.07	1.0-2.9	0.0-0.5	.10	.24			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
SM:														
Schamber-----	0-4	---	---	10-20	1.35-1.50	14.11-42.33	0.07-0.11	0.0-2.9	1.0-2.0	.15	.24	5	5	56
	4-12	---	---	8-18	1.25-1.50	14.11-42.33	0.06-0.08	0.0-1.6	0.0-0.5	.15	.37			
	12-60	---	---	1-10	1.45-1.60	42.33-141.14	0.02-0.03	0.0-0.2	0.0-0.5	.05	.24			
Midway-----	0-3	---	---	35-40	1.25-1.40	0.42-1.41	0.17-0.20	4.5-6.9	0.5-2.0	.24	.24	2	4L	86
	3-8	---	---	35-50	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	8-14	---	---	35-50	1.20-1.35	0.42-1.41	0.14-0.18	7.0-8.9	0.0-0.5	.24	.24			
	14-24	---	---	---	---	0.42-1.41	---	---	---	---	---			
Sn:														
Sitcan-----	0-10	---	---	15-25	1.35-1.50	4.23-14.11	0.13-0.15	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	10-15	---	---	18-27	1.30-1.45	4.23-14.11	0.14-0.21	1.5-3.5	0.5-2.0	.28	.28			
	15-28	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.21	1.5-3.5	0.5-2.0	.28	.28			
	28-33	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.21	1.5-3.5	0.5-2.0	.28	.28			
	33-40	---	---	15-27	1.35-1.50	4.23-14.11	0.13-0.19	1.5-2.9	0.0-1.0	.24	.24			
	40-70	---	---	10-26	1.35-1.50	4.23-14.11	0.12-0.16	1.0-2.9	0.0-0.5	.37	.37			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
SR:														
Saruche-----	0-4	---	---	35-40	1.25-1.40	0.42-1.41	0.14-0.18	2.0-4.0	0.5-1.0	.17	.32	2	5	56
	4-16	---	---	35-50	1.25-1.45	0.42-1.41	0.15-0.17	4.5-6.0	0.0-1.0	.24	.24			
	16-20	---	---	---	---	0.42-1.41	---	---	---	---	---			
	20-30	---	---	---	---	0.42-1.41	---	---	---	---	---			
Rombo-----	0-4	---	---	30-40	1.15-1.30	0.42-1.41	0.14-0.16	3.0-5.9	0.5-2.0	.17	.32	3	5	56
	4-22	---	---	35-50	1.15-1.30	0.42-1.41	0.13-0.19	6.0-7.5	0.5-1.0	.32	.28			
	22-34	---	---	35-50	1.20-1.35	0.42-1.41	0.13-0.19	6.0-7.5	0.0-0.5	.32	.32			
	34-44	---	---	---	---	0.01-0.42	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
Sw:														
Molinaro-----	0-17	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-2.9	3.0-5.0	.24	.24	5	6	48
	17-31	---	---	18-27	1.30-1.45	4.23-14.11	0.13-0.17	1.0-3.5	2.0-4.0	.24	.24			
	31-41	---	---	20-30	1.30-1.45	4.23-14.11	0.13-0.19	1.0-3.5	1.0-3.0	.24	.24			
	41-66	---	---	18-30	1.30-1.45	4.23-14.11	0.13-0.19	1.0-2.9	0.5-2.0	.37	.37			
TbA:														
Trementina, warm-----	0-8	---	---	20-27	1.15-1.30	4.23-14.11	0.14-0.18	1.5-2.9	2.0-5.0	.20	.20	5	6	48
	8-14	---	---	20-27	1.15-1.30	4.23-14.11	0.15-0.20	1.5-4.0	3.0-5.0	.28	.28			
	14-21	---	---	27-35	1.15-1.30	4.23-14.11	0.15-0.21	1.5-4.0	2.0-4.0	.32	.32			
	21-29	---	---	20-35	1.25-1.35	4.23-14.11	0.15-0.21	1.5-4.0	0.5-2.0	.43	.43			
	29-39	---	---	20-35	1.25-1.35	4.23-14.11	0.15-0.21	1.5-4.0	0.5-2.0	.43	.43			
	39-50	---	---	20-35	1.25-1.35	4.23-14.11	0.15-0.21	1.5-4.0	0.5-2.0	.43	.43			
	50-72	---	---	15-30	1.25-1.35	4.23-14.11	0.13-0.19	1.5-2.9	0.5-2.0	.28	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
TeE: Tecolote-----	0-1	---	---	5-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	6	48
	1-5	---	---	5-20	1.35-1.50	14.11-42.33	0.05-0.07	0.0-2.9	1.0-2.0	.10	.24			
	5-15	---	---	5-20	1.35-1.50	14.11-42.33	0.05-0.07	0.0-2.9	0.5-1.0	.10	.28			
	15-25	---	---	5-25	1.35-1.50	4.23-42.33	0.05-0.09	0.0-2.9	0.5-1.0	.10	.24			
	25-60	---	---	20-35	1.25-1.40	4.23-14.11	0.07-0.09	1.0-2.9	0.0-0.5	.10	.24			
TF: Torreon, stony-----	0-7	---	---	27-35	1.25-1.40	1.41-4.23	0.13-0.16	1.0-2.9	3.0-5.0	.10	.15	5	7	38
	7-11	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	1.0-3.0	.20	.20			
	11-29	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	29-37	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	37-60	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.16	3.0-5.9	0.0-0.5	.17	.32			
Fuera-----	0-2	---	---	18-27	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	5	7	38
	2-7	---	---	18-27	1.25-1.40	4.23-14.11	0.12-0.14	0.0-2.9	0.5-1.0	.20	.37			
	7-10	---	---	20-40	1.25-1.40	1.41-14.11	0.13-0.15	3.0-4.0	0.0-0.5	.15	.28			
	10-11	---	---	20-40	1.25-1.40	1.41-14.11	0.13-0.15	3.0-4.0	0.0-0.5	.15	.28			
	11-27	---	---	45-60	1.15-1.30	0.42-1.41	0.10-0.12	3.0-5.5	0.0-0.5	.10	.20			
	27-47	---	---	45-60	1.15-1.30	0.42-1.41	0.10-0.12	3.0-5.5	0.0-0.5	.10	.20			
	47-60	---	---	35-50	1.15-1.40	0.42-1.41	0.12-0.14	3.0-5.5	0.0-0.5	.15	.24			
TgD: Trujillo-----	0-5	---	---	10-20	1.35-1.50	14.11-42.33	0.09-0.13	0.5-2.9	2.0-4.0	.20	.20	5	3	86
	5-8	---	---	10-20	1.35-1.50	14.11-42.33	0.09-0.13	0.5-2.9	2.0-4.0	.20	.20			
	8-19	---	---	20-35	1.30-1.45	4.23-14.11	0.13-0.19	1.5-3.5	0.5-1.5	.24	.24			
	19-26	---	---	20-35	1.30-1.45	4.23-14.11	0.13-0.19	1.5-3.5	0.5-1.5	.24	.24			
	26-35	---	---	20-35	1.30-1.45	4.23-14.11	0.13-0.19	1.5-3.5	0.5-1.5	.24	.24			
	35-60	---	---	15-27	1.35-1.50	4.23-42.34	0.09-0.13	1.0-2.9	0.0-0.5	.28	.28			
	60-65	---	---	15-27	1.30-1.45	4.23-42.34	0.11-0.15	0.5-2.9	0.0-0.5	.28	.28			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
TgE:														
Trujillo-----	0-5	---	---	10-20	1.35-1.50	14.11-42.33	0.09-0.13	0.5-2.9	2.0-4.0	.20	.20	5	3	86
	5-8	---	---	10-20	1.35-1.50	14.11-42.33	0.09-0.13	0.5-2.9	2.0-4.0	.20	.20			
	8-19	---	---	20-35	1.30-1.45	4.23-14.11	0.13-0.19	1.5-3.5	0.5-1.5	.24	.24			
	19-26	---	---	20-35	1.30-1.45	4.23-14.11	0.13-0.19	1.5-3.5	0.5-1.5	.24	.24			
	26-35	---	---	20-35	1.30-1.45	4.23-14.11	0.13-0.19	1.5-3.5	0.5-1.5	.24	.24			
	35-60	---	---	15-27	1.35-1.50	4.23-42.34	0.09-0.13	1.0-2.9	0.0-0.5	.28	.28			
	60-65	---	---	15-27	1.30-1.45	4.23-42.34	0.11-0.15	0.5-2.9	0.0-0.5	.28	.28			
TL:														
Torreón, stony-----	0-7	---	---	27-35	1.25-1.40	1.41-4.23	0.13-0.16	1.0-2.9	3.0-5.0	.10	.15	5	7	38
	7-11	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	1.0-3.0	.20	.20			
	11-29	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	29-37	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	37-60	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.16	3.0-5.9	0.0-0.5	.17	.32			
Lorencito-----	0-4	---	---	30-35	1.25-1.40	1.41-4.23	0.16-0.20	3.0-5.9	0.5-2.0	.24	.24	2	7	38
	4-10	---	---	35-50	1.15-1.30	0.42-1.41	0.13-0.18	6.0-8.9	0.0-0.5	.32	.32			
	10-16	---	---	---	---	0.42-14.11	---	---	---	---	---			
TmD:														
Trujillo-----	0-9	---	---	15-20	1.30-1.45	14.11-42.34	0.14-0.16	0.0-2.9	2.0-4.0	.24	.24	5	5	56
	9-13	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.16	1.5-2.9	1.0-2.0	.28	.28			
	13-20	---	---	20-35	1.25-1.40	4.23-14.11	0.14-0.16	1.5-3.5	0.5-1.5	.28	.28			
	20-36	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.16	1.5-3.5	0.5-1.0	.28	.28			
	36-58	---	---	15-27	1.35-1.50	4.23-42.34	0.10-0.14	0.5-2.9	0.5-1.0	.37	.37			
	58-70	---	---	15-27	1.35-1.50	4.23-42.34	0.10-0.14	0.5-2.9	0.5-1.0	.37	.37			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
TnA: Trementina, cool-----	0-4	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	3.0-4.5	3.0-5.0	.20	.20	5	6	48
	4-20	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	3.0-4.5	2.0-4.0	.28	.28			
	20-31	---	---	27-35	1.25-1.35	1.41-4.23	0.17-0.21	3.0-4.0	0.5-3.0	.28	.28			
	31-60	---	---	27-35	1.25-1.35	1.41-4.23	0.17-0.21	3.0-4.0	0.5-2.0	.28	.28			
TnB: Trementina, dry-----	0-6	---	---	20-27	1.15-1.30	4.23-14.11	0.15-0.20	1.5-2.9	3.0-5.0	.28	.28	5	6	48
	6-15	---	---	20-27	1.15-1.30	4.23-14.11	0.15-0.20	1.5-3.5	3.0-5.0	.28	.28			
	15-22	---	---	25-35	1.15-1.30	4.23-14.11	0.15-0.21	1.5-4.0	2.0-4.0	.32	.32			
	22-30	---	---	25-35	1.25-1.35	4.23-14.11	0.15-0.21	1.5-4.0	0.5-2.0	.28	.28			
	30-44	---	---	20-35	1.25-1.35	4.23-14.11	0.15-0.21	1.5-3.5	0.5-2.0	.32	.32			
	44-65	---	---	15-27	1.25-1.35	4.23-14.11	0.13-0.20	1.5-2.9	0.5-2.0	.28	.28			
To: Torreon-----	0-5	---	---	18-27	1.15-1.30	4.23-14.11	0.14-0.18	2.0-2.9	3.0-5.0	.28	.28	5	6	48
	5-13	---	---	35-50	1.15-1.30	0.42-1.41	0.13-0.19	6.0-8.9	1.0-3.0	.28	.28			
	13-27	---	---	35-50	1.15-1.30	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.28	.28			
	27-38	---	---	35-50	1.15-1.40	0.42-1.41	0.10-0.16	6.0-8.9	0.0-0.5	.15	.24			
	38-56	---	---	30-50	1.15-1.40	0.42-1.41	0.10-0.16	3.0-5.9	0.0-0.5	.15	.24			
	56-72	---	---	27-40	1.25-1.40	1.41-4.23	0.09-0.11	0.0-2.9	0.0-0.5	.10	.28			
ToD: Torreon-----	0-7	---	---	27-40	1.25-1.40	1.41-4.23	0.13-0.16	2.5-4.0	3.0-5.0	.10	.15	5	4	86
	7-10	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	1.0-3.0	.20	.20			
	10-29	---	---	35-55	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	29-35	---	---	35-55	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	35-45	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.16	3.0-5.9	0.0-0.5	.17	.32			
	45-64	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.16	3.0-5.9	0.0-0.5	.17	.32			



Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
ToE:														
Torreón-----	0-5	---	---	18-27	1.15-1.30	4.23-14.11	0.14-0.18	2.0-2.9	3.0-5.0	.28	.28	5	6	48
	5-13	---	---	35-50	1.15-1.30	0.42-1.41	0.13-0.19	6.0-8.9	1.0-3.0	.28	.28			
	13-27	---	---	35-50	1.15-1.30	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.28	.28			
	27-38	---	---	35-50	1.15-1.40	0.42-1.41	0.10-0.16	6.0-8.9	0.0-0.5	.15	.24			
	38-56	---	---	30-50	1.15-1.40	0.42-1.41	0.10-0.16	3.0-5.9	0.0-0.5	.15	.24			
	56-72	---	---	27-40	1.25-1.40	1.41-4.23	0.09-0.11	0.0-2.9	0.0-0.5	.10	.28			
Torreón, stony-----	0-7	---	---	27-35	1.25-1.40	1.41-4.23	0.13-0.16	1.0-2.9	3.0-5.0	.10	.15	5	7	38
	7-11	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	1.0-3.0	.20	.20			
	11-29	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	29-37	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	37-60	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.16	3.0-5.9	0.0-0.5	.17	.32			
TsD:														
Travessilla-----	0-5	---	---	10-18	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	0.5-2.0	.28	.28	1	3	86
	5-11	---	---	5-18	1.35-1.50	14.11-42.33	0.09-0.15	0.0-2.9	0.0-0.5	.32	.32			
	11-14	---	---	5-18	1.35-1.50	14.11-42.33	0.09-0.15	0.0-2.9	0.0-0.5	.32	.32			
	14-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
TsE:														
Torreón-----	0-7	---	---	27-35	1.25-1.40	1.41-4.23	0.13-0.16	1.0-2.9	3.0-5.0	.10	.15	5	7	38
	7-11	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	1.0-3.0	.20	.20			
	11-29	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	29-37	---	---	35-50	1.15-1.40	0.42-1.41	0.13-0.19	6.0-8.9	0.5-2.0	.20	.20			
	37-60	---	---	30-40	1.15-1.40	1.41-4.23	0.13-0.16	3.0-5.9	0.0-0.5	.17	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
TsF:														
Travessilla-----	0-5	---	---	10-18	1.35-1.50	14.11-42.33	0.10-0.12	0.0-2.9	0.5-2.0	.28	.28	1	3	86
	5-11	---	---	5-18	1.35-1.50	14.11-42.33	0.09-0.15	0.0-2.9	0.0-0.5	.32	.32			
	11-14	---	---	5-18	1.35-1.50	14.11-42.33	0.09-0.15	0.0-2.9	0.0-0.5	.32	.32			
	14-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
Us:														
Aridic Calciustolls--	0-1	---	---	20-27	0.20-1.00	100.00- 600.00	0.15-0.45	---	70-95	---	---	3	8	0
	1-6	---	---	20-27	1.15-1.30	4.23-14.11	0.11-0.15	0.0-2.9	2.0-4.0	.10	.24			
	6-14	---	---	20-35	1.15-1.30	4.23-14.11	0.08-0.12	3.0-5.9	1.0-3.0	.10	.28			
	14-19	---	---	20-35	1.15-1.30	4.23-14.11	0.11-0.16	3.0-5.9	0.5-2.0	.15	.28			
	19-42	---	---	20-27	1.25-1.40	4.23-14.11	0.14-0.18	0.0-2.9	0.0-1.0	.37	.37			
	42-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
VB:														
Vona, overblown-----	0-13	---	---	2-8	1.35-1.50	14.11-42.33	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	2	134
	13-19	---	---	10-18	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	19-29	---	---	10-18	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	29-40	---	---	5-9	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	40-72	---	---	10-18	1.35-1.60	14.11-141.10	0.07-0.13	0.0-2.9	0.0-0.5	.28	.28			
VD:														
Dargol-----	0-1	---	---	20-27	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	2	6	48
	1-6	---	---	20-27	1.25-1.40	4.23-14.11	0.13-0.16	0.0-2.9	1.0-2.0	.28	.28			
	6-10	---	---	35-55	1.20-1.35	0.10-1.41	0.16-0.20	6.0-8.9	0.5-1.0	.24	.24			
	10-29	---	---	40-55	1.15-1.30	0.10-1.41	0.13-0.16	6.0-8.9	0.0-0.5	.28	.28			
	29-60	---	---	---	---	0.00-0.42	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
VD: Stout-----	0-1	---	---	5-15	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	1	5	56
	1-5	---	---	5-15	1.40-1.55	14.11-42.34	0.07-0.11	0.0-2.9	0.5-1.0	.15	.28			
	5-16	---	---	5-18	1.40-1.55	14.11-42.34	0.07-0.13	0.0-2.9	0.0-0.5	.17	.32			
	16-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
Vamer-----	0-1	---	---	15-20	0.20-1.00	100.00- 300.00	0.15-0.45	---	70-95	---	---	1	3	86
	1-3	---	---	15-20	1.35-1.50	4.23-14.11	0.12-0.15	0.0-2.9	1.0-2.0	.24	.24			
	3-7	---	---	15-20	1.35-1.50	4.23-14.11	0.12-0.15	0.0-2.9	1.0-2.0	.24	.24			
	7-16	---	---	35-55	1.15-1.40	0.42-1.41	0.14-0.17	6.0-8.9	0.0-0.5	.20	.20			
	16-60	---	---	---	---	0.01-1.00	---	---	---	---	---			
VnC: Vona-----	0-5	---	---	5-15	1.35-1.50	14.11-42.33	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	5-12	---	---	10-18	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	12-17	---	---	10-18	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	17-38	---	---	10-18	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	38-41	---	---	3-15	1.35-1.60	14.11-141.10	0.07-0.13	0.0-2.9	0.0-0.5	.28	.28			
	41-68	---	---	3-15	1.35-1.60	14.11-141.10	0.07-0.13	0.0-2.9	0.0-0.5	.28	.28			
VoB: Vona-----	0-5	---	---	5-15	1.35-1.50	14.11-42.33	0.11-0.13	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	5-12	---	---	10-18	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	12-17	---	---	10-18	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	17-38	---	---	10-18	1.35-1.50	14.11-42.33	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28			
	38-41	---	---	3-15	1.35-1.60	14.11-141.10	0.07-0.13	0.0-2.9	0.0-0.5	.28	.28			
	41-68	---	---	3-15	1.35-1.60	14.11-141.10	0.07-0.13	0.0-2.9	0.0-0.5	.28	.28			



Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
Wa:														
Wapiti-----	0-6	---	---	18-27	1.35-1.50	4.23-14.11	0.14-0.18	1.0-2.9	1.0-3.0	.28	.28	5	6	48
	6-14	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.21	1.5-3.5	1.0-2.0	.24	.24			
	14-27	---	---	20-35	1.30-1.45	4.23-14.11	0.14-0.21	1.5-3.5	0.5-1.0	.24	.24			
	27-38	---	---	20-30	1.30-1.45	4.23-14.11	0.14-0.21	1.5-3.5	0.5-1.0	.24	.24			
	38-70	---	---	20-30	1.35-1.50	4.23-14.11	0.14-0.21	1.0-2.9	0.5-1.0	.24	.24			
WC:														
Plughat-----	0-3	---	---	18-27	1.15-1.35	4.23-14.11	0.15-0.20	1.0-2.9	1.0-2.0	.37	.37	3	6	48
	3-6	---	---	27-35	1.15-1.40	1.41-14.11	0.15-0.21	1.5-3.5	0.5-1.0	.37	.37			
	6-13	---	---	27-35	1.15-1.40	1.41-14.11	0.15-0.21	1.5-3.5	0.5-1.0	.37	.37			
	13-27	---	---	27-35	1.15-1.40	1.41-14.11	0.15-0.21	1.5-3.5	0.5-1.0	.37	.37			
	27-34	---	---	18-27	1.15-1.40	4.23-14.11	0.15-0.21	1.0-2.9	0.0-0.5	.37	.37			
	34-48	---	---	18-27	1.15-1.40	4.23-14.11	0.15-0.21	1.0-2.9	0.0-0.5	.32	.32			
	48-60	---	---	---	---	0.42-1.41	---	---	---	---	---			
Villegreen-----	0-6	---	---	18-27	1.25-1.40	4.23-14.11	0.14-0.18	0.5-2.9	0.5-2.0	.37	.37	2	6	48
	6-9	---	---	27-35	1.15-1.40	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.28	.28			
	9-15	---	---	28-35	1.15-1.40	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.28	.28			
	15-24	---	---	28-35	1.15-1.40	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.28	.28			
	24-32	---	---	18-35	1.25-1.40	1.41-14.11	0.13-0.19	0.5-2.9	0.0-0.5	.24	.37			
	32-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
WeB:														
Wiley-----	0-4	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	1.0-2.0	.37	.37	5	6	48
	4-9	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	9-15	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	15-26	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	26-35	---	---	20-35	1.15-1.30	1.41-14.11	0.15-0.21	1.5-3.5	0.0-1.0	.43	.43			
	35-44	---	---	20-35	1.15-1.30	1.41-14.11	0.15-0.21	1.0-2.9	0.0-1.0	.43	.43			
	44-72	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	0.0-0.5	.49	.49			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
WM:														
Minnequa-----	0-4	---	---	18-27	1.25-1.40	4.23-14.11	0.14-0.18	1.0-3.5	0.5-2.0	.43	.43	3	4L	86
	4-14	---	---	18-35	1.25-1.40	4.23-14.11	0.13-0.17	1.0-3.5	0.0-0.5	.43	.43			
	14-24	---	---	18-35	1.25-1.40	4.23-14.11	0.13-0.17	1.0-3.5	0.0-0.5	.43	.43			
	24-29	---	---	---	---	1.41-4.23	0.01-0.03	---	---	---	---			
	29-60	---	---	---	---	1.41-4.23	---	---	---	---	---			
Wilid-----	0-6	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	1.5-2.9	1.0-2.0	.37	.37	5	6	48
	6-10	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	10-30	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	30-44	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	44-60	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	0.0-0.5	.49	.49			
WrB:														
Wilid-----	0-6	---	---	27-34	1.15-1.30	1.41-4.23	0.17-0.21	2.5-4.0	1.0-2.0	.28	.28	5	6	48
	6-18	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	2.0-3.5	0.0-1.0	.32	.37			
	18-36	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.5-3.5	0.0-0.5	.49	.49			
	36-60	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.5-2.9	0.0-0.5	.49	.49			
WV:														
Almagre-----	0-5	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	1.0-2.0	.37	.37	3	6	48
	5-9	---	---	18-27	1.15-1.30	1.41-14.11	0.15-0.21	1.5-2.9	0.5-1.0	.37	.37			
	9-23	---	---	24-35	1.15-1.30	1.41-4.23	0.15-0.21	1.5-3.5	0.5-1.0	.37	.37			
	23-30	---	---	27-35	1.15-1.30	1.41-4.23	0.15-0.21	1.5-3.5	0.5-1.0	.37	.37			
	30-40	---	---	20-35	1.15-1.30	1.41-4.23	0.15-0.21	1.0-2.9	0.5-1.0	.37	.37			
	40-50	---	---	18-27	1.25-1.30	4.23-14.11	0.13-0.18	1.0-2.9	0.0-0.5	.49	.49			
	50-60	---	---	---	---	0.42-1.41	---	---	---	---	---			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In.	Pct.	Pct.	Pct.	g/cc	um/sec	In./in.	Pct.	Pct.					
WV:														
Villedry-----	0-4	---	---	18-27	1.15-1.50	4.23-14.11	0.15-0.20	1.0-2.9	1.0-2.0	.37	.37	2	6	48
	4-7	---	---	18-30	1.15-1.50	4.23-14.11	0.15-0.20	1.5-2.9	1.0-2.0	.37	.37			
	7-15	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	15-25	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.5-1.0	.32	.32			
	25-33	---	---	20-35	1.25-1.40	1.41-14.11	0.13-0.19	1.5-3.5	0.0-0.5	.32	.32			
	33-38	---	---	18-30	1.25-1.40	4.23-14.11	0.10-0.13	1.0-2.9	0.0-0.5	.24	.43			
	38-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
WyB:														
Wilid-----	0-6	---	---	15-27	1.15-1.30	4.23-14.11	0.15-0.20	1.5-2.9	1.0-2.0	.37	.37	5	6	48
	6-10	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	10-30	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	30-44	---	---	27-35	1.15-1.30	1.41-4.23	0.17-0.21	1.5-3.5	0.0-1.0	.32	.37			
	44-60	---	---	18-27	1.15-1.30	4.23-14.11	0.15-0.20	1.0-2.9	0.0-0.5	.49	.49			
YaA:														
Yattle-----	0-4	---	---	5-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	4-28	---	---	8-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	28-33	---	---	8-18	1.25-1.50	14.11-42.33	0.13-0.18	0.0-2.9	0.0-1.0	.32	.32			
	33-43	---	---	8-18	1.25-1.50	14.11-42.33	0.13-0.18	0.0-2.9	0.0-1.0	.32	.32			
	43-70	---	---	8-18	1.25-1.50	14.11-42.33	0.13-0.18	0.0-2.9	0.0-1.0	.32	.32			
YaC:														
Yattle-----	0-4	---	---	5-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-2.0	.28	.28	5	3	86
	4-28	---	---	8-18	1.35-1.50	14.11-42.33	0.13-0.15	0.0-2.9	0.5-1.0	.28	.28			
	28-33	---	---	8-18	1.25-1.50	14.11-42.33	0.13-0.18	0.0-2.9	0.0-1.0	.32	.32			
	33-43	---	---	8-18	1.25-1.50	14.11-42.33	0.13-0.18	0.0-2.9	0.0-1.0	.32	.32			
	43-70	---	---	8-18	1.25-1.50	14.11-42.33	0.13-0.18	0.0-2.9	0.0-1.0	.32	.32			

Table 21.--Physical soil properties--continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	<u>In.</u>	<u>Pct.</u>	<u>Pct.</u>	<u>Pct.</u>	<u>g/cc</u>	<u>um/sec</u>	<u>In./in.</u>	<u>Pct.</u>	<u>Pct.</u>					
ZR:														
Rizozo-----	0-3	---	---	10-20	1.35-1.50	4.23-42.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.32	1	5	56
	3-8	---	---	10-25	1.25-1.50	4.23-14.11	0.10-0.13	0.0-2.9	0.0-0.5	.20	.37			
	8-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---
ZRF:														
Rizozo-----	0-3	---	---	10-20	1.35-1.50	4.23-42.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.32	1	5	56
	3-8	---	---	10-25	1.25-1.50	4.23-14.11	0.10-0.13	0.0-2.9	0.0-0.5	.20	.37			
	8-60	---	---	---	---	0.01-1.41	---	---	---	---	---			
Rock outcrop-----	0-60	---	---	0-0	---	0.00-1.41	---	---	---	---	---	--	---	---



Table 22.--Chemical soil properties

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
AA:								
Ayon-----	0-6	15-22	---	7.4-8.4	0-5	0	0	0
	6-14	15-22	---	7.4-8.4	5-15	0	0.0-2.0	0
	14-19	15-22	---	7.9-8.4	15-45	0	0.0-2.0	0
	19-65	13-21	---	7.9-8.4	15-50	0-2	0.0-2.0	0
Apache-----	0-5	13-23	---	7.4-8.4	5-15	0	0	0
	5-9	16-28	---	7.4-8.4	5-15	0	0	0
	9-15	16-28	---	7.4-8.4	5-15	0	0	0
	15-60	---	---	---	---	---	---	---
AC:								
Ayon-----	0-10	15-22	---	7.4-8.4	0-5	0	0	0
	10-14	15-22	---	7.4-8.4	5-15	0	0.0-2.0	0
	14-32	15-22	---	7.9-8.4	15-45	0	0.0-2.0	0
	32-60	13-21	---	7.9-8.4	15-45	0-2	0.0-2.0	0
Capulin-----	0-8	15-23	---	6.6-7.8	0	0	0	0
	8-17	21-28	---	7.4-8.4	0-2	0	0	0
	17-32	21-28	---	7.4-8.4	1-5	0	0	0
	32-38	16-28	---	7.9-8.4	15-25	0	0	0
	38-60	13-21	---	7.9-8.4	15-25	0	0.0-2.0	0-1

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
AcC:								
Acantilado-----	0-4	12-21	---	7.4-8.4	0-6	0	0	0
	4-15	12-20	---	7.4-8.4	2-15	0	0	0
	15-28	14-27	---	7.9-8.4	15-35	0	0.0-2.0	0
	28-39	14-23	---	7.9-8.4	15-35	0	0.0-2.0	0
	39-58	14-23	---	7.9-9.0	15-30	0-2	0.0-2.0	0
	58-62	14-21	---	7.9-9.0	15-30	0-2	0.0-3.0	0-5
	62-70	11-21	---	7.9-9.0	3-15	0-2	0.0-4.0	0-5
AED:								
Dams, earthen dam----	---	---	---	---	---	---	---	---
AnB:								
Ascalon-----	0-3	4.8-13	---	6.6-7.8	0	0	0	0
	3-7	4.8-13	---	6.6-7.8	0	0	0	0
	7-14	16-28	---	6.6-7.8	0	0	0	0
	14-23	16-28	---	6.6-7.8	0	0	0	0
	23-30	16-28	---	7.9-8.4	5-7	0	0.0-2.0	0
	30-65	7.6-16	---	7.9-9.0	5-10	0	0.0-2.0	0
Ap:								
Apache-----	0-5	13-23	---	7.4-8.4	5-15	0	0	0
	5-9	16-28	---	7.4-8.4	5-15	0	0	0
	9-15	16-28	---	7.4-8.4	5-15	0	0	0
	15-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
AR:								
Calcidic Argiustolls-	0-8	23-36	---	6.6-7.3	0	0	0	0
	8-10	32-53	---	6.6-7.8	0-5	0	0	0
	10-20	20-42	---	6.6-7.8	0-5	0	0	0
	20-35	6.0-23	---	7.4-7.8	1-5	0	0	0
	35-60	4.8-18	---	7.4-8.4	15-25	0	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---	---
AsB:								
Ascalon, overblown---	0-15	3.0-9.3	---	6.6-7.8	0	0	0	0
	15-30	16-28	---	6.6-7.8	0	0	0	0
	30-40	16-24	---	7.4-7.8	0-2	0	0	0
	40-49	7.6-16	---	7.9-9.0	5-10	0	0.0-2.0	0
	49-65	7.6-16	---	7.9-9.0	5-15	0	0.0-2.0	0
AV:								
Aguilar-----	0-4	6.2-22	---	7.4-8.4	0-1	0	0.0-4.0	1-8
	4-10	18-42	---	7.9-9.0	0-5	0	8.0-16.0	15-35
	10-14	18-36	---	8.5-9.0	0-5	0-1	12.0-18.0	15-35
	14-23	6.0-27	---	8.5-9.0	1-5	1-5	12.0-20.0	15-35
	23-29	6.0-27	---	7.9-9.0	1-5	1-5	12.0-18.0	15-35
	29-45	4.8-23	---	7.9-9.0	1-5	1-5	8.0-16.0	15-35
	45-65	4.8-23	---	7.9-9.0	1-4	1-5	4.0-16.0	5-25

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
AV:								
Beckton-----	0-3	13-26	---	7.4-8.4	0-2	0	2.0-16.0	5-15
	3-13	18-39	---	8.5-9.6	0-5	0	8.0-16.0	15-40
	13-23	18-39	---	8.5-9.6	1-5	0	12.0-18.0	15-40
	23-36	18-39	---	8.5-9.6	1-5	0-2	12.0-20.0	15-40
	36-52	18-31	---	7.9-9.0	5-15	0-5	8.0-16.0	15-35
	52-59	18-31	---	7.9-8.4	5-15	0-5	8.0-16.0	15-35
	59-72	1.7-13	---	7.4-8.4	1-15	0-5	2.0-16.0	15-35
AvC:								
Aguilar-----	0-6	16-22	---	7.4-8.4	0-1	0	0.0-4.0	0-4
	6-14	29-40	---	7.9-9.0	0-5	0	8.0-16.0	15-35
	14-28	26-39	---	7.9-9.0	1-5	1-5	12.0-18.0	15-35
	28-41	23-33	---	8.5-9.0	1-5	1-5	12.0-20.0	15-35
	41-65	23-33	---	7.9-9.0	1-4	1-5	4.0-16.0	5-25
AW:								
Allens Park-----	0-2	50-90	30-60	5.6-6.5	0	0	0	0
	2-4	4.6-17	---	6.1-7.3	0	0	0	0
	4-9	4.6-17	---	6.1-7.3	0	0	0	0
	9-14	16-22	---	6.1-7.3	0	0	0	0
	14-30	14-27	---	6.1-7.3	0	0	0	0
	30-37	14-27	---	6.1-7.3	---	---	---	---
	37-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
<b>AW:</b>								
Wahatoya-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-3	8.6-17	---	5.6-7.3	0	0	0	0
	3-9	8.6-17	---	5.6-7.3	0	0	0	0
	9-21	16-27	---	5.6-7.3	0	0	0	0
	21-31	16-27	---	5.6-7.3	0	0	0	0
	31-36	11-24	---	5.6-7.3	0	0	0	0
	36-60	---	---	---	---	---	---	---
<b>BaA:</b>								
Baca-----	0-3	11-23	---	6.6-7.8	0	0	0	0
	3-6	11-23	---	6.6-7.8	0	0	0	0
	6-13	18-36	---	6.6-7.8	0	0	0	0
	13-21	18-36	---	7.4-8.4	0-5	0	0	0
	21-27	18-36	---	7.4-8.4	0-5	0	0	0
	27-37	11-36	---	7.4-8.4	0-10	0	0.0-2.0	0
	37-47	3.7-18	---	7.9-9.0	5-15	0-3	0.0-2.0	0
	47-72	2.9-16	---	7.9-9.0	5-15	0-3	0.0-2.0	0-2
<b>BaB:</b>								
Bacid-----	0-5	11-23	---	6.6-7.8	0	0	0	0
	5-13	16-36	---	6.6-7.8	0-1	0	0	0
	13-20	18-31	---	7.4-8.4	1-5	0	0.0-1.0	0
	20-30	18-31	---	7.4-8.4	5-15	0	0.0-2.0	0
	30-60	2.9-16	---	7.9-9.0	5-15	0-3	0.0-2.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
<b>BaC:</b>								
Baca, cool-----	0-6	11-23	---	6.6-7.8	0	0	0	0
	6-9	18-36	---	6.6-8.4	0	0	0	0
	9-25	18-36	---	6.6-8.4	0-2	0	0	0
	25-32	18-36	---	6.6-8.4	1-5	0	0.0-1.0	0
	32-45	3.7-18	---	7.9-9.0	5-15	0-1	0.0-2.0	0
	45-60	2.9-16	---	7.9-9.0	5-15	0-3	0.0-2.0	0-2
<b>BcA:</b>								
Baca, cool-----	0-6	11-23	---	6.6-7.8	0	0	0	0
	6-9	18-36	---	6.6-8.4	0	0	0	0
	9-25	18-36	---	6.6-8.4	0-2	0	0	0
	25-32	18-36	---	6.6-8.4	1-5	0	0.0-1.0	0
	32-45	3.7-18	---	7.9-9.0	5-15	0-1	0.0-2.0	0
	45-60	2.9-16	---	7.9-9.0	5-15	0-3	0.0-2.0	0-2
<b>Bk:</b>								
Fallriver-----	0-2	80-95	30-60	5.1-6.0	0	0	0	0
	2-16	---	---	4.5-5.5	0	0	0	0
	16-30	---	4.0-9.5	4.5-5.5	0	0	0	0
	30-70	---	1.7-9.5	4.5-5.5	0	0	0	0
<b>BnA:</b>								
Bacid-----	0-8	18-29	---	6.6-7.8	0	0	0	0
	8-15	20-31	---	6.6-7.8	0	0	0	0
	15-30	18-31	---	7.4-8.4	5-15	0	0.0-2.0	0
	30-60	2.9-15	---	7.9-9.0	5-15	0-2	0.0-2.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
BT:								
Barela-----	0-5	16-32	---	6.1-7.3	0	0	0	0
	5-11	18-29	---	6.1-7.3	0	0	0	0
	11-16	14-42	---	6.1-7.3	0	0	0	0
	16-20	18-34	---	6.1-7.3	0	0	0	0
	20-30	18-34	---	6.1-7.3	0	0	0	0
	30-36	18-34	---	6.6-7.3	0	0	0	0
	36-48	6.0-25	---	6.6-7.8	0	0	0	0
	48-60	---	---	---	---	---	---	---
Raton-----	0-6	18-29	---	6.6-7.3	0	0	0	0
	6-9	18-37	---	6.6-7.3	0	0	0	0
	9-17	20-42	---	6.6-7.3	0	0	0	0
	17-60	---	---	---	---	---	---	---
BwA:								
Bloom-----	0-8	22-28	---	7.9-8.4	1-5	0	0.0-8.0	0-5
	8-18	16-28	---	7.9-9.0	2-8	1-5	0.0-4.0	0-8
	18-45	16-28	---	7.9-9.0	2-8	1-5	0.0-4.0	0-5
	45-60	16-28	---	7.9-9.0	2-8	1-5	0.0-4.0	0-5
Bx:								
Boxcanyon-----	0-2	13-26	---	6.6-7.8	0-1	0	0	0
	2-17	18-39	---	7.4-8.4	1-5	0	0	0
	17-27	18-36	---	7.9-8.4	5-15	0	0.0-2.0	0
	27-33	18-36	---	7.9-9.0	5-15	0	0.0-2.0	0
	33-45	3.7-23	---	7.9-9.0	20-50	0	0.0-4.0	0-5
	45-54	2.9-14	---	7.9-9.0	15-50	0-2	0.0-4.0	0-5
	54-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
CaD:								
Razor-----	0-2	26-45	---	7.9-8.4	1-5	0	0.0-1.0	0
	2-10	20-36	---	7.9-9.0	1-10	0-1	1.0-2.0	2-10
	10-28	20-36	---	7.9-9.0	1-10	0-5	1.0-10.0	10-14
	28-40	---	---	---	---	---	---	---
CC:								
Chacuaco-----	0-8	8.9-22	---	6.6-8.4	0	0	0	0
	8-12	15-25	---	6.6-8.4	0	0	0	0
	12-19	16-28	---	7.4-8.4	5-15	0	0	0
	19-26	16-28	---	7.4-8.4	5-15	0	0	0
	26-32	11-21	---	7.9-8.4	15-40	0-2	0.0-2.0	0-2
	32-60	---	---	---	---	---	---	---
Capulin-----	0-8	15-23	---	6.6-7.8	0	0	0	0
	8-17	21-28	---	7.4-8.4	0-2	0	0	0
	17-32	21-28	---	7.4-8.4	1-5	0	0	0
	32-38	16-28	---	7.9-8.4	15-25	0	0	0
	38-60	13-21	---	7.9-8.4	15-25	0	0.0-2.0	0-1
CD:								
Chacuaco-----	0-5	8.9-22	---	6.6-8.4	0	0	0	0
	5-10	15-22	---	6.6-8.4	0	0	0	0
	10-20	16-25	---	7.4-8.4	5-15	0	0	0
	20-30	9.6-15	---	7.9-8.4	15-40	0-2	0.0-2.0	0-2
	30-60	---	---	---	---	---	---	---
Dalero-----	0-5	4.8-16	---	6.6-8.4	0-7	0	0	0
	5-10	4.0-10	---	7.4-8.4	1-15	0	0.0-2.0	0
	10-60	---	---	---	---	---	---	---



Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
Co:								
Collegiate-----	0-10	11-16	---	6.6-7.3	0	0	0	0
	10-38	9.1-16	---	6.6-7.3	0	0	0	0
	38-60	0.0-4.8	---	6.6-7.8	0	0	0	0
CpA:								
Calemore-----	0-9	22-28	---	6.6-7.8	0	0	0	0
	9-15	22-29	---	6.6-7.8	0-2	0	0	0
	15-22	21-28	---	7.4-8.4	0-2	0	0	0
	22-36	19-28	---	7.9-9.0	1-15	0	0.0-1.0	0
	36-41	14-27	---	7.9-9.0	5-15	0	0.0-1.0	0
	41-65	11-21	---	7.9-9.0	10-25	0	0.0-2.0	0
CpB:								
Calemore-----	0-7	15-22	---	6.6-7.8	0	0	0	0
	7-11	17-29	---	6.6-7.8	0-2	0	0	0
	11-20	20-28	---	7.4-8.4	0-2	0	0	0
	20-36	19-27	---	7.9-9.0	5-15	0	0.0-1.0	0
	36-42	19-27	---	7.9-9.0	5-15	0	0.0-1.0	0
	42-65	11-21	---	7.9-9.0	15-35	0	0.0-2.0	0
CpC:								
Capulin-----	0-8	15-23	---	6.6-7.8	0	0	0	0
	8-17	21-28	---	7.4-8.4	0-2	0	0	0
	17-32	21-28	---	7.4-8.4	1-5	0	0	0
	32-38	16-28	---	7.9-8.4	15-25	0	0	0
	38-60	13-21	---	7.9-8.4	15-25	0	0.0-2.0	0-1

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
CpT:								
Capulin-----	0-8	15-23	---	6.6-7.8	0	0	0	0
	8-17	21-28	---	7.4-8.4	0-2	0	0	0
	17-32	21-28	---	7.4-8.4	1-5	0	0	0
	32-38	16-28	---	7.9-8.4	15-25	0	0	0
	38-60	13-21	---	7.9-8.4	15-25	0	0.0-2.0	0-1
Torreon-----	0-7	26-44	---	6.6-7.3	0	0	0	0
	7-10	23-45	---	6.6-7.8	0-5	0	0	0
	10-29	18-42	---	6.6-7.8	0-5	0	0	0
	29-35	18-42	---	7.4-8.4	5-10	0	0	0
	35-45	5.2-20	---	7.4-8.4	15-24	0	0.0-2.0	0
	45-64	5.2-20	---	7.4-8.4	15-24	0	0.0-2.0	0
Ct:								
Breece-----	0-7	11-16	---	6.1-7.3	0	0	0	0
	7-45	8.9-16	---	6.6-7.3	0	0	0	0
	45-60	4.6-16	---	6.6-7.8	0	0	0	0
CwC:								
Cumulic Cryaquolls---	0-2	40-80	30-60	6.6-7.3	0	0	0	0
	2-10	20-40	---	6.6-7.3	0	0	0	0
	10-60	25-55	---	6.6-7.3	0-1	0	0	0
DaE:								
Daleroose-----	0-5	4.8-16	---	6.6-8.4	0-7	0	0	0
	5-10	4.0-10	---	7.4-8.4	1-15	0	0.0-2.0	0
	10-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
De:								
Davtone-----	0-16	9.4-22	---	6.1-7.3	0	0	0	0
	16-23	17-23	---	6.1-7.3	0	0	0	0
	23-38	16-27	---	6.6-7.3	0	0	0	0
	38-64	11-21	---	6.6-7.3	0	0	0	0
DFV:								
Fuera-----	0-2	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	2-7	15-22	---	6.1-7.3	0	0	0	0
	7-10	14-30	---	6.1-7.3	0	0	0	0
	10-11	14-30	---	6.1-7.3	0	0	0	0
	11-27	29-44	---	6.1-7.3	0	0	0	0
	27-47	29-44	---	6.1-7.3	0	0	0	0
	47-60	23-37	---	6.1-7.8	0	0	0	0
Dargol-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-6	17-22	---	5.6-6.5	0	0	0	0
	6-10	27-41	---	5.6-6.5	0	0	0	0
	10-29	26-40	---	5.6-6.5	0	0	0	0
	29-60	---	---	---	---	---	---	---
Vamer-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-3	11-18	---	6.1-7.3	0	0	0	0
	3-7	11-18	---	6.1-7.3	0	0	0	0
	7-16	6.0-27	---	6.1-7.3	0	0	0	0
	16-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
DH:								
Davtone-----	0-19	9.4-18	---	6.1-7.3	0	0	0	0
	19-30	17-28	---	6.1-7.3	0	0	0	0
	30-41	16-28	---	6.6-7.3	0	0	0	0
	41-48	14-28	---	6.6-7.3	0	0	0	0
	48-72	11-16	---	6.6-7.3	0	0	0	0
Histic Cryaquolls----	0-6	40-80	30-60	5.1-6.5	0	0	0	0
	6-10	40-80	30-60	5.1-6.5	0	0	0	0
	10-20	10-20	---	6.1-7.3	0	0	0	0
	20-29	10-19	---	6.1-7.3	0	0	0	0
	29-60	7.2-14	---	6.1-7.3	0	0	0	0
Dm:								
Demayo-----	0-5	22-29	---	6.6-7.8	0	0	0	0
	5-12	22-29	---	6.6-7.8	0	0	0	0
	12-22	---	---	---	---	---	---	---
Ds:								
Des Moines-----	0-4	16-29	---	6.1-7.3	0	0	0	0
	4-18	18-37	---	6.1-7.3	0	0	0	0
	18-36	20-31	---	6.1-7.3	0	0	0	0
	36-48	3.7-18	---	6.6-7.8	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
Dt:								
Davtone-----	0-19	9.4-18	---	6.1-7.3	0	0	0	0
	19-30	17-28	---	6.1-7.3	0	0	0	0
	30-41	16-28	---	6.6-7.3	0	0	0	0
	41-48	14-28	---	6.6-7.3	0	0	0	0
	48-72	11-16	---	6.6-7.3	0	0	0	0
Dv:								
Feterita-----	0-3	16-29	---	6.6-7.8	0	0	0.0-4.0	0
	3-8	29-49	---	7.4-7.8	0-3	0	0.0-4.0	0
	8-21	18-39	---	7.4-8.4	3-7	0	0.0-4.0	0
	21-35	18-39	---	7.9-8.4	3-10	0	0.0-4.0	0-2
	35-72	4.8-23	---	7.9-8.4	10-15	0-2	0.0-8.0	0-4
Ec:								
Eguaje-----	0-5	18-33	---	6.6-7.8	0	0	0	0
	5-14	20-45	---	6.6-7.8	0-5	0	0	0
	14-19	15-30	---	7.9-8.4	15-35	0	0.0-2.0	0
	19-28	15-30	---	7.9-8.4	15-35	0	0.0-2.0	0
	28-60	10-20	---	7.9-9.0	20-45	0-2	0.0-4.0	0
Demayo-----	0-5	22-29	---	6.6-7.8	0	0	0	0
	5-12	22-29	---	6.6-7.8	0	0	0	0
	12-22	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
EL:								
Ellicott-----	0-7	4.7-14	---	6.6-7.8	0	0	0	0
	7-14	3.1-13	---	7.4-7.8	0-1	0	0	0
	14-21	0.0-7.8	---	7.4-7.8	0-1	0	0	0
	21-31	1.4-11	---	7.4-7.8	0-1	0	0	0
	31-40	0.0-1.9	---	7.4-7.8	0-1	0	0	0
	40-62	0.0-1.8	---	6.6-7.8	0-1	0	0	0
Las Animas-----	0-3	12-21	---	7.9-8.4	1-5	0	0.0-4.0	0-5
	3-11	4.6-15	---	7.9-8.4	1-5	0-5	2.0-4.0	0-5
	11-23	4.6-15	---	7.9-8.4	1-5	0-5	2.0-8.0	0-5
	23-26	4.6-15	---	7.9-8.4	1-5	0-5	2.0-8.0	0-5
	26-36	2.6-13	---	7.9-8.4	1-5	0-5	2.0-8.0	0-5
	36-65	0.0-6.3	---	7.9-8.4	1-5	0	0.0-2.0	0
ES:								
Embargo-----	0-7	10-25	---	6.1-7.3	0	0	0	0
	7-14	10-25	---	6.1-7.3	0	0	0	0
	14-20	20-35	---	6.6-7.3	0	0	0	0
	20-25	20-40	---	6.1-7.3	0	0	0	0
	25-60	---	---	---	---	---	---	---
Schwacheim-----	0-5	10-25	---	6.1-7.3	0	0	0	0
	5-9	10-25	---	6.1-7.3	0	0	0	0
	9-14	10-30	---	6.1-7.3	0	0	0	0
	14-18	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
<b>FcB:</b>								
Wapiti-----	0-6	22-29	---	6.6-7.8	0	0	0	0
	6-14	17-28	---	7.4-7.8	0-2	0	0	0
	14-26	14-27	---	7.4-7.8	0-2	0	0	0
	26-34	14-27	---	7.4-8.4	5-15	0	0	0-1
	34-43	14-23	---	7.9-9.0	15-30	0	0.0-2.0	0-2
	43-67	8.9-21	---	7.9-9.0	2-15	0-1	0.0-2.0	0-1
<b>FcC:</b>								
Fort-----	0-7	15-22	---	6.6-7.8	0	0	0	0
	7-21	15-27	---	7.4-7.8	0-2	0	0	0
	21-35	19-27	---	7.4-8.4	2-7	0	0	0
	35-40	13-21	---	7.9-8.4	5-10	0	0.0-1.0	0
	40-65	11-21	---	7.9-9.0	5-15	0-2	0.0-2.0	0-1
<b>FcD:</b>								
Fort-----	0-4	10-17	---	6.6-7.8	0	0	0	0
	4-7	13-21	---	7.4-7.8	0-2	0	0	0
	7-13	13-27	---	7.4-7.8	0-2	0	0	0
	13-28	13-27	---	7.9-8.4	5-15	0	0	0
	28-60	8.9-21	---	7.9-9.0	5-15	0	0.0-2.0	0
<b>Fp:</b>								
Fishers-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-5	14-29	---	6.1-7.3	0	0	0	0
	5-9	14-29	---	6.1-7.3	0	0	0	0
	9-14	8.8-18	---	5.6-7.3	0	0	0	0
	14-19	6.0-25	---	6.1-7.3	0	0	0	0
	19-36	6.0-25	---	6.1-7.3	0	0	0	0
	36-47	6.0-25	---	6.1-7.3	0	0	0	0
	47-60	4.5-20	---	6.1-7.3	0	0	0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
<b>FtC:</b>								
<b>Olnest-----</b>	0-3	10-15	---	6.6-7.8	0	0	0	0
	3-10	16-25	---	6.6-7.8	0	0	0	0
	10-21	16-25	---	6.6-7.8	1-5	0	0	0
	21-38	7.6-17	---	7.9-9.0	4-10	0	0	0
	38-72	7.6-17	---	7.9-9.0	4-10	0	0	0
<b>FuD:</b>								
<b>Bandarito-----</b>	0-3	23-29	---	6.1-7.3	0	0	0	0
	3-12	28-36	---	6.1-7.3	0	0	0	0
	12-18	31-40	---	6.1-7.3	0	0	0.0-0.2	0
	18-29	31-39	---	6.1-7.8	0	0	0.0-0.5	0
	29-35	31-39	---	6.6-7.8	1-2	0	0.0-0.5	0-2
	35-40	31-39	---	6.6-7.8	1-5	0	0.0-2.0	0-2
	40-56	23-35	---	7.4-8.4	1-5	0	0.0-2.0	0-2
	56-66	20-31	---	7.4-8.4	1-5	0	0.0-2.0	0-2
<b>FuE:</b>								
<b>Bandarito-----</b>	0-3	23-29	---	6.1-7.3	0	0	0	0
	3-12	28-36	---	6.1-7.3	0	0	0	0
	12-18	31-40	---	6.1-7.3	0	0	0.0-0.2	0
	18-29	31-39	---	6.1-7.8	0	0	0.0-0.5	0
	29-35	31-39	---	6.6-7.8	1-2	0	0.0-0.5	0-2
	35-40	31-39	---	6.6-7.8	1-5	0	0.0-2.0	0-2
	40-56	23-35	---	7.4-8.4	1-5	0	0.0-2.0	0-2
	56-66	20-31	---	7.4-8.4	1-5	0	0.0-2.0	0-2



Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
FW:								
Bandarito-----	0-3	23-29	---	6.1-7.3	0	0	0	0
	3-12	28-36	---	6.1-7.3	0	0	0	0
	12-18	31-40	---	6.1-7.3	0	0	0.0-0.2	0
	18-29	31-39	---	6.1-7.8	0	0	0.0-0.5	0
	29-35	31-39	---	6.6-7.8	1-2	0	0.0-0.5	0-2
	35-40	31-39	---	6.6-7.8	1-5	0	0.0-2.0	0-2
	40-56	23-35	---	7.4-8.4	1-5	0	0.0-2.0	0-2
	56-66	20-31	---	7.4-8.4	1-5	0	0.0-2.0	0-2
Fishers-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-5	14-29	---	6.1-7.3	0	0	0	0
	5-9	14-29	---	6.1-7.3	0	0	0	0
	9-14	8.8-18	---	5.6-7.3	0	0	0	0
	14-19	6.0-25	---	6.1-7.3	0	0	0	0
	19-36	6.0-25	---	6.1-7.3	0	0	0	0
	36-47	6.0-25	---	6.1-7.3	0	0	0	0
	47-60	4.5-20	---	6.1-7.3	0	0	0	0
FyB:								
Furia-----	0-4	25-33	---	6.6-7.8	0	0	0.0-1.0	0-1
	4-16	29-33	---	6.6-7.8	0	0	0.0-1.0	0-1
	16-32	28-41	---	6.6-7.8	0	0	0	0
	32-43	28-41	---	6.1-7.8	0-2	0	0	0
	43-72	24-33	---	6.1-7.8	0-2	0	0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
GA:								
Gulnare-----	0-2	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0-2
	2-5	8.6-17	---	6.1-7.3	0	0	0	0
	5-13	16-28	---	5.6-7.3	0	0	0	0
	13-18	16-28	---	5.6-7.3	0	0	0	0
	18-19	---	---	---	---	---	---	---
	19-60	---	---	---	---	---	---	---
Allens Park-----	0-5	4.6-17	---	6.1-7.3	0	0	0	0
	5-10	8.6-17	---	6.1-7.3	0	0	0	0
	10-16	14-27	---	6.1-7.3	0	0	0	0
	16-20	14-27	---	6.1-7.3	0	0	0	0
	20-24	14-27	---	6.1-7.3	0	0	0	0
	24-26	---	---	---	---	---	---	---
	26-60	---	---	---	---	---	---	---
GC:								
Groomer-----	0-10	20-31	---	6.1-7.3	0	0	0	0
	10-21	23-37	---	6.6-7.3	0	0	0	0
	21-39	6.7-31	---	6.6-7.3	0	0	0	0
	39-50	6.7-25	---	6.6-7.8	0	0	0	0
	50-66	6.0-20	---	7.4-8.4	1-5	0	0.0-4.0	0
Cucharas-----	0-10	20-40	---	6.1-7.3	0	0	0	0
	10-26	25-50	---	6.1-7.3	0	0	0	0
	26-32	25-50	---	6.1-7.8	0	0	0	0
	32-42	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
GgB:								
Glenberg-----	0-5	8.6-17	---	7.4-8.4	0-2	0	0	0
	5-9	8.6-17	---	7.4-8.4	1-2	0	0	0
	9-60	4.1-15	---	7.4-8.4	1-3	0	0.0-2.0	0-2
GmE:								
Aquic Dystrocryepts--	0-11	---	---	4.5-5.0	0	0	0	0
	11-20	---	---	4.5-5.5	0	0	0	0
	20-34	---	---	4.5-5.5	0	0	0	0
	34-60	---	---	4.5-5.5	0	0	0	0
Gn:								
Angostura-----	0-1	50-90	30-60	5.1-6.5	0	0	0	0
	1-12	8.6-17	---	5.1-6.5	0	0	0	0
	12-24	11-20	---	5.1-6.5	0	0	0	0
	24-46	14-23	---	5.6-6.5	0	0	0	0
	46-61	14-23	---	5.6-6.5	0	0	0	0
	61-72	14-23	---	5.1-7.3	0	0	0	0
GP:								
Pits, gravel-----	0-72	0.0-5.0	---	---	---	---	---	---
GR:								
Gulnare-----	0-2	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0-2
	2-5	8.6-17	---	6.1-7.3	0	0	0	0
	5-13	16-28	---	5.6-7.3	0	0	0	0
	13-18	16-28	---	5.6-7.3	0	0	0	0
	18-19	---	---	---	---	---	---	---
	19-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
<b>Hn:</b>								
Hoehne-----	0-3	8.6-16	---	6.6-7.8	0	0	0	0
	3-14	4.1-15	---	7.4-7.8	0-1	0	0	0
	14-34	4.1-15	---	7.4-7.8	0-1	0	0	0-1
	34-44	4.1-15	---	7.4-7.8	0-1	0	0	0-1
	44-60	4.1-15	---	7.4-7.8	0-1	0	0	0-1
<b>HvA:</b>								
Haversid-----	0-14	15-22	---	7.4-8.4	1-5	0	0.0-4.0	0
	14-32	15-22	---	7.9-8.4	1-10	0	0.0-4.0	0-5
	32-53	15-28	---	7.9-9.0	1-15	0-2	0.0-8.0	1-10
	53-72	11-22	---	7.9-9.0	1-15	0-5	0.0-8.0	1-10
<b>HyD:</b>								
Humbarsprings-----	0-7	16-23	---	7.4-8.4	0-5	0	0	0
	7-10	15-23	---	7.4-8.4	1-5	0	0	0
	10-22	16-22	---	7.9-8.4	5-15	0	0	0
	22-35	0.0-7.3	---	7.9-8.4	15-35	0	0.0-4.0	0-2
	35-66	0.0-7.1	---	7.9-9.0	15-35	0	0.0-4.0	0-2
<b>K2D:</b>								
Kimera-----	0-4	15-22	---	7.4-8.4	1-5	0	0	0
	4-11	16-24	---	7.4-8.4	5-10	0	0	0
	11-38	16-24	---	7.9-9.0	15-25	0-2	0.0-4.0	0
	38-60	12-22	---	7.9-9.0	5-35	0-2	0.0-4.0	0
<b>Chicosa-----</b>	0-6	15-22	---	7.4-8.4	1-5	0	0	0
	6-16	16-22	---	7.4-8.4	2-10	0	0	0
	16-28	13-21	---	7.9-9.0	15-40	0	0.0-4.0	0-5
	28-42	6.2-15	---	7.9-9.0	15-40	0	0.0-4.0	0-5
	42-60	1.8-6.3	---	7.4-8.4	5-10	0	0.0-4.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
KI:								
Kandrix-----	0-6	15-22	---	7.4-8.4	1-5	0	0	0
	6-15	16-24	---	7.4-8.4	5-15	0	0	0
	15-33	14-27	---	7.9-8.4	15-25	0	0.0-4.0	0
	33-60	11-20	---	7.9-8.4	15-35	0-5	0.0-4.0	0
Chicosa-----	0-6	15-22	---	7.4-8.4	0-5	0	0	0
	6-14	16-24	---	7.4-8.4	2-10	0	0	0
	14-19	6.2-15	---	7.9-9.0	15-40	0	0.0-4.0	0-5
	19-29	6.2-15	---	7.9-9.0	15-40	0	0.0-4.0	0-5
	29-70	1.0-6.3	---	7.9-9.0	1-10	0	0.0-2.0	0-2
Km:								
Kimera-----	0-6	15-22	---	7.4-8.4	1-5	0	0	0
	6-19	16-24	---	7.4-8.4	5-10	0	0	0
	19-24	16-27	---	7.9-9.0	15-35	0-2	0.0-4.0	0
	24-50	16-24	---	7.9-9.0	15-25	0-2	1.0-4.0	0
	50-65	12-22	---	7.9-9.0	5-15	0-2	1.0-8.0	0
KmC:								
Willid-----	0-6	13-22	---	7.4-8.4	0-3	0	0	0
	6-10	19-28	---	7.9-8.4	5-10	0	0	0
	10-30	19-28	---	7.9-8.4	5-10	0	0	0
	30-44	19-28	---	7.9-8.4	5-10	0	0	0
	44-60	13-21	---	7.9-9.0	5-15	0-2	0.0-4.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
<b>KmC:</b>								
Kimera-----	0-4	15-22	---	7.4-8.4	1-5	0	0	0
	4-15	16-24	---	7.4-8.4	5-15	0	0	0
	15-28	16-28	---	7.9-9.0	15-30	0	0.0-4.0	0
	28-47	16-27	---	7.9-9.0	15-35	0	1.0-4.0	0-1
	47-57	14-23	---	7.9-9.0	15-25	0-2	1.0-4.0	0-3
	57-65	11-21	---	7.9-9.0	5-25	0-5	1.0-8.0	0-5
<b>KO:</b>								
Kimera-----	0-6	12-17	---	7.4-8.4	1-5	0	0	0
	6-21	16-24	---	7.4-8.4	5-15	0	0	0
	21-40	16-24	---	7.9-9.0	15-35	0	0	0
	40-60	11-21	---	7.9-9.0	10-25	0-5	1.0-4.0	0-5
<b>Oterodry-----</b>	0-11	4.6-16	---	7.4-8.4	0-5	0	0	0
	11-25	4.1-15	---	7.4-8.4	1-10	0	0.0-2.0	0
	25-60	4.1-15	---	7.9-8.4	1-10	0	0.0-2.0	0
<b>Kw:</b>								
Kandrix-----	0-4	15-22	---	7.4-8.4	1-5	0	0	0
	4-12	16-24	---	7.4-8.4	5-10	0	0	0
	12-28	16-24	---	7.9-8.4	16-25	0	0.0-3.0	0
	28-36	14-23	---	7.9-8.4	16-30	0	0.0-4.0	0-5
	36-66	11-19	---	7.4-9.0	5-15	0-5	0.0-4.0	0-5

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
KwC:								
Kandrix-----	0-6	15-22	---	7.4-8.4	1-5	0	0	0
	6-14	16-24	---	7.4-8.4	5-15	0	0	0
	14-26	16-28	---	7.9-8.4	16-35	0	0.0-3.0	0
	26-42	16-28	---	7.9-8.4	16-35	0	0.0-4.0	0
	42-51	14-23	---	7.9-9.0	15-25	0-5	0.0-4.0	0-5
	51-65	11-21	---	7.9-9.0	5-35	0-5	0.0-4.0	0-5
Wiley-----	0-4	13-22	---	6.6-7.8	0	0	0	0
	4-9	21-28	---	7.9-8.4	0-5	0	0	0
	9-15	18-28	---	7.9-8.4	1-5	0	0.0-0.5	0
	15-26	18-28	---	7.9-8.4	5-15	0	0.0-1.0	0-3
	26-35	14-28	---	7.9-9.0	5-15	0	0.0-2.0	0-5
	35-44	14-28	---	7.9-9.0	5-15	0	0.0-2.0	0-7
	44-72	13-21	---	7.9-9.0	15-30	0-3	2.0-8.0	0-5
La:								
Lanola-----	0-7	13-26	---	7.9-9.0	35-50	0-5	0.0-2.0	0
	7-12	11-24	---	7.9-9.0	40-75	0-5	0.0-4.0	0-0
	12-40	---	---	---	---	---	---	---
Lb:								
La Brier-----	0-5	23-29	---	6.6-7.8	0	0	0	0
	5-11	28-40	---	7.4-8.4	0	0	0	0
	11-21	28-40	---	7.4-8.4	0-2	0	0	0
	21-36	27-39	---	7.9-9.0	1-10	0	0.0-2.0	0
	36-46	14-28	---	7.9-9.0	5-15	0	0.0-2.0	0
	46-72	14-27	---	7.9-9.0	5-15	0-4	0.0-2.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
Ld:								
Leadville-----	0-2	50-90	30-60	5.1-6.5	0	0	0	0
	2-16	7.6-17	---	6.1-7.3	0	0	0	0
	16-22	7.6-16	---	5.6-7.3	0	0	0	0
	22-48	14-27	---	5.6-7.3	0	0	0	0
	48-65	14-23	---	6.1-7.3	0	0	0	0
LG:								
Manzanst-----	0-3	18-32	---	7.4-8.4	0-5	0	0.0-2.0	0-5
	3-6	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-5
	6-20	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-5
	20-28	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-10
	28-40	5.2-20	---	7.9-9.0	5-15	0-3	0.0-4.0	1-10
	40-65	5.2-20	---	7.9-9.0	5-15	0-3	0.0-4.0	1-10
Ritoazul-----	0-3	23-36	---	7.4-8.4	15-30	0	0.0-2.0	0-2
	3-18	20-34	---	7.4-8.4	15-30	0	0.0-1.0	0-1
	18-29	20-34	---	7.4-8.4	15-30	0	0.0-1.0	0-1
	29-33	6.0-25	---	7.4-8.4	5-15	1-10	1.0-3.0	0-2
	33-36	6.0-25	---	7.4-8.4	1-10	10-25	1.0-3.0	0-2
	36-60	---	---	---	---	---	---	---
LH:								
Leadville-----	0-2	50-90	30-60	5.1-6.5	0	0	0	0
	2-16	7.6-17	---	6.1-7.3	0	0	0	0
	16-22	7.6-16	---	5.6-7.3	0	0	0	0
	22-48	14-27	---	5.6-7.3	0	0	0	0
	48-65	14-23	---	6.1-7.3	0	0	0	0



Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
LH:								
Howlett-----	0-2	50-90	30-60	5.1-6.5	0	0	0	0
	2-14	7.6-17	---	5.6-7.3	0	0	0	0
	14-23	14-27	---	6.1-7.3	0	0	0	0
	23-47	14-27	---	6.1-7.3	0	0	0	0
	47-65	14-27	---	6.1-7.3	0	0	0	0
Lo:								
La Brier-----	0-5	23-29	---	6.6-7.8	0	0	0	0
	5-11	28-40	---	7.4-8.4	0	0	0	0
	11-21	28-40	---	7.4-8.4	0-2	0	0	0
	21-36	27-39	---	7.9-9.0	1-10	0	0.0-2.0	0
	36-46	14-28	---	7.9-9.0	5-15	0	0.0-2.0	0
	46-72	14-27	---	7.9-9.0	5-15	0-4	0.0-2.0	0
Rock outcrop-----	0-60	---	---	---	---	---	---	---
LoA:								
Limon-----	0-6	16-26	---	7.9-9.0	1-6	0	2.0-4.0	1-5
	6-20	6.0-29	---	7.9-9.0	1-8	0-2	4.0-12.0	1-10
	20-60	6.0-29	---	7.9-9.0	1-8	0-2	4.0-8.0	1-10
LR:								
Fallriver-----	0-2	80-95	30-60	5.1-6.0	0	0	0	0
	2-16	---	---	4.5-5.5	0	0	0	0
	16-30	---	4.0-9.5	4.5-5.5	0	0	0	0
	30-70	---	1.7-9.5	4.5-5.5	0	0	0	0
Rubble land-----	0-60	---	---	---	0	0	0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
LRT:								
Lorencito-----	0-4	27-32	---	6.6-7.8	0	0	0	0
	4-16	23-45	---	6.6-7.8	0	0	0.0-2.0	0-2
	16-26	---	---	---	---	---	---	---
Rombo-----	0-4	23-32	---	6.6-7.8	0	0	0	0
	4-22	27-38	---	6.6-7.8	0	0	0	0
	22-34	23-37	---	6.6-7.8	3-5	0	0.0-1.0	0-2
	34-44	---	---	---	---	---	---	---
Sarcillo-----	0-5	5.0-20	---	6.1-7.3	0	0	0	0
	5-8	20-40	---	6.6-7.8	0	0	0	0
	8-13	20-40	---	6.6-8.4	0	0	0	0
	13-16	20-40	---	6.6-8.4	0-5	0	0	0
	16-60	---	---	---	---	---	---	---
Ls:								
Las Animas-----	0-3	12-21	---	7.9-8.4	1-5	0	0.0-4.0	0-5
	3-11	4.6-15	---	7.9-8.4	1-5	0-5	2.0-4.0	0-5
	11-23	4.6-15	---	7.9-8.4	1-5	0-5	2.0-8.0	0-5
	23-26	4.6-15	---	7.9-8.4	1-5	0-5	2.0-8.0	0-5
	26-36	2.6-13	---	7.9-8.4	1-5	0-5	2.0-8.0	0-5
	36-65	0.0-6.3	---	7.9-8.4	1-5	0	0.0-2.0	0
LST:								
Lorencito-----	0-4	27-32	---	6.6-7.8	0	0	0	0
	4-16	23-45	---	6.6-7.8	0	0	0.0-2.0	0-2
	16-26	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
LST:								
Sarcillo-----	0-5	5.0-20	---	6.1-7.3	0	0	0	0
	5-8	20-40	---	6.6-7.8	0	0	0	0
	8-13	20-40	---	6.6-8.4	0	0	0	0
	13-16	20-40	---	6.6-8.4	0-5	0	0	0
	16-60	---	---	---	---	---	---	---
Trujillo-----	0-9	13-21	---	6.1-7.3	0	0	0	0
	9-13	15-28	---	6.1-7.3	0	0	0	0
	13-20	16-28	---	6.1-7.3	0	0	0	0
	20-36	16-28	---	6.1-7.3	0	0	0	0
	36-58	12-22	---	6.6-7.8	0	0	0	0-0
	58-70	12-22	---	6.6-7.8	0-3	0	0.0-2.0	0-2
Lt:								
Littlepine-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-3	9.1-18	---	6.1-7.3	0	0	0	0
	3-6	8.6-17	---	6.1-7.3	0	0	0	0
	6-16	14-28	---	6.1-7.3	0	0	0	0
	16-30	14-28	---	6.1-7.3	0	0	0	0
	30-48	14-28	---	6.1-7.3	0	0	0	0
	48-66	11-21	---	6.1-7.3	0	0	0	0
	66-72	5.5-16	---	6.1-7.8	0	0	0	0
LvD:								
Lorencito-----	0-8	23-32	---	6.6-7.8	0	0	0	0
	8-18	23-37	---	6.6-7.8	0	0	0.0-2.0	0-2
	18-28	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
LW:								
Littlepine-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-3	9.1-18	---	6.1-7.3	0	0	0	0
	3-6	8.6-17	---	6.1-7.3	0	0	0	0
	6-16	14-28	---	6.1-7.3	0	0	0	0
	16-30	14-28	---	6.1-7.3	0	0	0	0
	30-48	14-28	---	6.1-7.3	0	0	0	0
	48-66	11-21	---	6.1-7.3	0	0	0	0
	66-72	5.5-16	---	6.1-7.8	0	0	0	0
Wahatoya-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-3	8.6-17	---	5.6-7.3	0	0	0	0
	3-9	8.6-17	---	5.6-7.3	0	0	0	0
	9-21	16-28	---	5.6-7.3	0	0	0	0
	21-31	16-28	---	5.6-7.3	0	0	0	0
	31-36	11-24	---	5.6-7.3	0	0	0	0
	36-60	---	---	---	---	---	---	---
MaB:								
Mauricanyon, warm----	0-4	13-23	---	6.6-7.8	0	0	0	0
	4-26	16-23	---	6.6-7.8	0	0	0	0
	26-40	17-23	---	7.4-8.4	0-2	0	0	0
	40-68	15-23	---	7.4-8.4	2-10	0	0.0-2.0	0-2
MaW:								
Mauricanyon, wet-----	0-6	10-25	---	6.6-7.8	0	0	0	0
	6-12	10-25	---	6.6-7.8	0-1	0	0	0
	12-23	10-25	---	6.6-7.8	0-1	0	0	0
	23-34	5.0-20	---	7.4-8.4	0-2	0	0.0-2.0	0-1
	34-44	5.0-20	---	7.4-8.4	0-2	0	0.0-2.0	0-1
	44-65	5.0-20	---	7.4-8.4	0-2	0	0.0-2.0	0-1

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
MD: Dumps, mine-----	0-60	---	---	---	---	---	---	---
Mf: Moran-----	0-6	10-25	---	4.5-5.5	0	0	0	0
	6-17	10-25	---	4.5-5.5	0	0	0	0
	17-30	10-20	---	4.5-6.0	0	0	0	0
	30-40	3.0-10	---	5.1-6.0	0	0	0	0
	40-60	2.0-10	---	5.1-6.0	0	0	0	0
MG: Tercio-----	0-2	50-90	30-60	5.1-6.0	0	0	0.0-0.5	0
	2-10	10-18	---	5.1-6.0	0	0	0	0
	10-16	4.8-20	---	5.6-6.5	0	0	0	0
	16-30	6.7-27	---	5.6-6.5	0	0	0	0
	30-38	6.7-27	---	5.6-6.5	0	0	0	0
	38-60	6.0-27	---	5.1-6.0	0	0	0	0
Graneros-----	0-1	50-90	30-60	5.1-6.0	0	0	0.0-0.5	0
	1-3	13-23	---	6.1-7.3	0	0	0	0
	3-7	11-18	---	5.6-7.3	0	0	0	0
	7-13	6.0-23	---	6.1-7.3	0	0	0	0
	13-23	6.0-23	---	6.1-7.3	0	0	0	0
	23-32	6.0-23	---	6.1-7.3	0	0	0	0
	32-60	---	---	---	---	---	---	---
MGR: Midway, moist-----	0-5	16-36	---	7.4-8.4	0-5	0-1	2.0-4.0	0-5
	5-14	6.0-25	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	14-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
MGR:								
Ritoazul-----	0-3	23-36	---	7.4-8.4	15-30	0	0.0-2.0	0-2
	3-18	20-34	---	7.4-8.4	15-30	0	0.0-1.0	0-1
	18-29	20-34	---	7.4-8.4	15-30	0	0.0-1.0	0-1
	29-33	6.0-25	---	7.4-8.4	5-15	1-10	1.0-3.0	0-2
	33-36	6.0-25	---	7.4-8.4	1-10	10-25	1.0-3.0	0-2
	36-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---
MI:								
Minqwet-----	0-6	16-22	---	7.4-8.4	15-30	0	1.0-3.0	0-1
	6-14	14-27	---	7.9-9.0	15-35	0-1	1.0-3.0	0-2
	14-21	14-27	---	7.9-9.0	15-35	0-1	1.0-3.0	0-2
	21-30	14-27	---	7.4-9.0	20-40	1-5	1.0-5.0	0-5
	30-45	---	---	---	---	---	---	---
Wiley-----	0-4	13-22	---	6.6-7.8	0	0	0	0
	4-9	21-28	---	7.9-8.4	0-5	0	0	0
	9-15	18-28	---	7.9-8.4	1-5	0	0.0-0.5	0
	15-26	18-28	---	7.9-8.4	5-15	0	0.0-1.0	0-3
	26-35	14-28	---	7.9-9.0	5-15	0	0.0-2.0	0-5
	35-44	14-28	---	7.9-9.0	5-15	0	0.0-2.0	0-7
	44-72	13-21	---	7.9-9.0	15-30	0-3	2.0-8.0	0-5
MIK:								
Midway-----	0-4	18-32	---	7.4-8.4	1-5	0-1	2.0-4.0	0-5
	4-10	6.0-25	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	10-18	6.0-25	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	18-39	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
<b>MIK:</b>								
Chicosa-----	0-6	15-22	---	7.4-8.4	0-5	0	0	0
	6-20	16-24	---	7.4-8.4	2-10	0	0	0
	20-37	6.2-15	---	7.9-9.0	15-40	0	0.0-4.0	0-5
	37-72	1.0-6.3	---	7.9-9.0	1-10	0	0.0-2.0	0-2
<b>MnA:</b>								
Manzanst-----	0-3	18-32	---	7.4-8.4	0-5	0	0.0-2.0	0-5
	3-6	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-5
	6-20	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-5
	20-28	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-10
	28-40	5.2-20	---	7.9-9.0	5-15	0-3	0.0-4.0	1-10
	40-65	5.2-20	---	7.9-9.0	5-15	0-3	0.0-4.0	1-10
<b>MnB:</b>								
Manzanst-----	0-3	18-32	---	7.4-8.4	0-5	0	0.0-2.0	0-5
	3-6	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-5
	6-20	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-5
	20-28	18-31	---	7.4-8.4	5-10	0-1	0.0-4.0	1-10
	28-40	5.2-20	---	7.9-9.0	5-15	0-3	0.0-4.0	1-10
	40-65	5.2-20	---	7.9-9.0	5-15	0-3	0.0-4.0	1-10
<b>MnW:</b>								
Aquic Haplustalfs----	0-3	18-32	---	7.4-8.4	0-5	0	0.0-2.0	0-5
	3-6	25-34	---	7.4-8.4	1-10	0-1	0.0-4.0	1-5
	6-18	18-31	---	7.4-8.4	5-10	0-2	0.0-4.0	1-5
	18-30	18-31	---	7.4-8.4	5-10	0-2	0.0-4.0	1-10
	30-36	20-27	---	7.4-8.4	1-15	0-3	0.0-4.0	1-10
	36-66	5.2-20	---	7.4-8.4	1-15	0-3	0.0-4.0	1-10

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
MoA:								
Mauricanyon-----	0-3	13-23	---	6.6-7.8	0	0	0	0
	3-8	17-25	---	6.6-7.8	0	0	0	0
	8-25	17-29	---	6.6-7.8	0-2	0	0	0
	25-72	12-25	---	6.6-8.4	2-5	0	0.0-2.0	0-2
MoB:								
Mauricanyon, dry-----	0-10	13-23	---	6.6-7.8	0	0	0	0
	10-21	16-23	---	6.6-7.8	0	0	0	0
	21-28	17-23	---	7.4-8.4	0-1	0	0	0
	28-40	17-23	---	7.4-8.4	0-2	0	0	0
	40-68	15-23	---	7.4-8.4	2-6	0	0.0-2.0	0-2
MoR:								
Mion-----	0-4	16-22	---	6.6-8.4	0-5	0-1	2.0-4.0	0-5
	4-14	23-34	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	14-60	---	---	---	---	---	---	---
MP:								
Midway-----	0-5	16-32	---	7.4-8.4	0-5	0-1	2.0-4.0	0-5
	5-12	6.0-23	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	12-60	---	---	---	---	---	---	---
Razor-----	0-5	14-32	---	7.9-8.4	1-5	0	0.0-2.0	0-5
	5-15	18-36	---	7.9-8.4	1-10	0	1.0-2.0	0-10
	15-21	18-36	---	7.9-9.0	1-10	0-1	1.0-2.0	0-10
	21-29	6.0-29	---	7.9-9.0	1-10	0-5	10.0-14.0	10-15
	29-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---



Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
MR:								
Mirror-----	0-10	---	5.9-10	4.5-5.5	0	0	0	0
	10-25	---	5.6-10	4.5-5.5	0	0	0	0
	25-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---
MvC:								
Manvel-----	0-4	12-22	---	7.9-8.4	1-10	0	0.0-2.0	0
	4-12	13-28	---	7.9-8.4	15-40	0-5	2.0-4.0	0-5
	12-60	13-28	---	7.9-9.0	15-40	0-5	2.0-4.0	0-5
MyD:								
Midway-----	0-3	18-32	---	7.4-8.4	1-5	0-1	2.0-4.0	0-5
	3-8	6.0-25	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	8-14	6.0-25	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	14-24	---	---	---	---	---	---	---
MzA:								
Manzanola-----	0-3	18-37	---	7.9-8.4	1-15	0	0.0-3.0	0
	3-10	18-31	---	7.9-8.4	5-15	0	0.0-3.0	0-3
	10-16	18-31	---	7.9-8.4	5-15	0	0.0-3.0	0-3
	16-27	18-31	---	7.9-9.0	10-15	0	1.0-3.0	5-10
	27-32	5.2-20	---	7.9-9.0	15-30	0-1	2.0-8.0	5-15
	32-38	5.2-20	---	7.9-9.0	15-30	0-3	2.0-8.0	5-15
	38-67	3.7-20	---	7.9-9.0	10-30	0-3	2.0-8.0	5-15

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
<b>MzB:</b>								
Manzanola-----	0-5	14-32	---	7.4-8.4	1-15	0	0	0
	5-17	18-31	---	7.4-8.4	5-15	0	0.0-1.0	0-3
	17-30	18-31	---	7.9-9.0	5-15	0	0.5-3.0	1-5
	30-50	5.2-20	---	7.9-9.0	5-20	0	2.0-5.0	4-8
	50-70	5.2-20	---	7.9-9.0	5-25	0-3	2.0-5.0	4-8
<b>NM:</b>								
Nopurg-----	0-1	50-90	30-60	5.1-6.0	0	0	0	0
	1-12	8.6-17	---	5.1-6.0	0	0	0	0
	12-24	14-27	---	5.6-6.5	0	0	0	0
	24-35	23-37	---	5.6-6.5	0	0	0	0
	35-72	23-37	---	5.6-6.5	0	0	0	0
<b>Mitotes-----</b>	0-1	50-90	30-60	5.1-6.0	0	0	0.0-2.0	0
	1-15	8.6-17	---	5.1-6.5	0	0	0	0
	15-21	16-27	---	5.1-6.5	0	0	0	0
	21-32	23-37	---	5.6-6.5	0	0	0	0
	32-51	23-37	---	5.6-6.5	0	0	0	0
	51-72	6.2-16	---	5.6-6.5	0	0	0	0
<b>OeC:</b>								
Otero-----	0-3	8.6-17	---	7.4-8.4	0-4	0	0	0
	3-10	8.6-17	---	7.4-8.4	0-4	0	0	0
	10-19	4.1-15	---	7.4-8.4	1-4	0	0.0-2.0	0
	19-30	4.1-15	---	7.4-8.4	1-4	0	0.0-2.0	0
	30-40	4.1-15	---	7.4-8.4	1-4	0	0.0-2.0	0
	40-65	4.1-15	---	7.4-8.4	1-4	0	0.0-2.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
OtD:								
Oterodry-----	0-11	4.6-16	---	7.4-8.4	0-5	0	0	0
	11-25	4.1-15	---	7.4-8.4	1-10	0	0.0-2.0	0
	25-60	4.1-15	---	7.9-8.4	1-10	0	0.0-2.0	0
OyB:								
Olnest-----	0-4	10-15	---	6.6-7.8	0	0	0	0
	4-14	16-25	---	6.6-7.8	0	0	0	0
	14-20	16-25	---	6.6-7.8	0	0	0	0
	20-28	8.9-24	---	7.9-9.0	4-10	0	0	0
	28-48	8.9-24	---	7.9-9.0	4-10	0	0	0
	48-60	8.9-16	---	7.9-9.0	5-15	0	0.0-2.0	0
OyC:								
Olnest-----	0-4	10-15	---	6.6-7.8	0	0	0	0
	4-14	16-25	---	6.6-7.8	0	0	0	0
	14-20	16-25	---	6.6-7.8	0	0	0	0
	20-28	8.9-24	---	7.9-9.0	4-10	0	0	0
	28-48	8.9-24	---	7.9-9.0	4-10	0	0	0
	48-60	8.9-16	---	7.9-9.0	5-15	0	0.0-2.0	0
PeD:								
Penrose-----	0-5	11-18	---	7.9-8.4	25-75	0	0.0-2.0	0
	5-9	9.3-17	---	7.9-9.0	40-75	0-1	0.0-2.0	0-5
	9-15	4.7-20	---	7.9-9.0	40-75	0-1	0.0-4.0	0-5
	15-26	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
PeF:								
Penrose-----	0-5	11-18	---	7.9-8.4	25-75	0	0.0-2.0	0
	5-9	9.3-17	---	7.9-9.0	40-75	0-1	0.0-2.0	0-5
	9-15	4.7-20	---	7.9-9.0	40-75	0-1	0.0-4.0	0-5
	15-26	---	---	---	---	---	---	---
Midway-----	0-3	16-36	---	7.4-8.4	1-5	0-1	2.0-4.0	0-5
	3-10	6.0-23	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	10-13	6.0-23	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	13-40	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---
PM:								
Penrose-----	0-5	11-18	---	7.9-8.4	25-75	0	0.0-2.0	0
	5-9	9.3-17	---	7.9-9.0	40-75	0-1	0.0-2.0	0-5
	9-15	4.7-20	---	7.9-9.0	40-75	0-1	0.0-4.0	0-5
	15-26	---	---	---	---	---	---	---
Minnequa-----	0-4	15-22	---	7.9-8.4	10-25	0-1	0.0-2.0	0-2
	4-14	13-27	---	7.9-9.0	15-39	0-5	0.0-4.0	0-8
	14-24	13-27	---	7.9-9.0	15-39	0-5	0.0-4.0	0-8
	24-29	---	---	---	---	---	---	---
	29-60	---	---	---	---	---	---	---
PnD:								
Penrose, moist-----	0-4	9.5-18	---	7.9-8.4	35-75	0	0.0-2.0	0
	4-10	4.7-18	---	7.9-9.0	40-75	0-2	0.0-2.0	0-10
	10-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
<b>RaB:</b>								
Ravine-----	0-3	14-29	---	7.4-8.4	0-5	0	0	0
	3-14	18-36	---	7.9-8.4	10-20	0	0.0-2.0	0-2
	14-21	20-36	---	7.9-9.0	15-35	0	0.0-2.0	0-5
	21-28	6.7-29	---	7.9-9.0	5-20	0-5	1.0-6.0	1-10
	28-60	---	---	---	---	---	---	---
<b>RaC:</b>								
Ritoazul-----	0-3	23-36	---	7.4-8.4	15-30	0	0.0-2.0	0-2
	3-18	20-34	---	7.4-8.4	15-30	0	0.0-1.0	0-1
	18-29	20-34	---	7.4-8.4	15-30	0	0.0-1.0	0-1
	29-33	6.0-25	---	7.4-8.4	5-15	1-10	1.0-3.0	0-2
	33-36	6.0-25	---	7.4-8.4	1-10	10-25	1.0-3.0	0-2
	36-60	---	---	---	---	---	---	---
<b>RB:</b>								
Raton-----	0-6	18-29	---	6.6-7.3	0	0	0	0
	6-9	18-37	---	6.6-7.3	0	0	0	0
	9-17	20-42	---	6.6-7.3	0	0	0	0
	17-60	---	---	---	---	---	---	---
<b>Barela-----</b>	0-5	16-32	---	6.1-7.3	0	0	0	0
	5-11	18-29	---	6.1-7.3	0	0	0	0
	11-16	14-42	---	6.1-7.3	0	0	0	0
	16-20	18-34	---	6.1-7.3	0	0	0	0
	20-30	18-34	---	6.1-7.3	0	0	0	0
	30-36	18-34	---	6.6-7.3	0	0	0	0
	36-48	6.0-25	---	6.6-7.8	0	0	0	0
	48-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
Rc:								
Raku-----	0-8	14-26	---	6.6-7.8	0	0	0	0
	8-11	18-39	---	6.6-7.8	0	0	0	0
	11-22	18-39	---	6.6-7.8	0	0	0	0
	22-28	18-31	---	7.9-8.4	1-5	0	0	0
	28-45	18-31	---	7.9-8.4	1-5	0	0	0
	45-68	10-23	---	7.9-9.0	15-30	0	0	0
RCA:								
Raku-----	0-3	18-33	---	6.6-7.8	0	0	0	0
	3-11	26-45	---	6.6-7.8	0	0	0	0
	11-18	20-39	---	6.6-7.8	0-1	0	0	0
	18-34	20-31	---	7.4-8.4	1-5	0	0	0
	34-41	20-31	---	7.9-8.4	1-5	0	0.0-1.0	0-1
	41-48	10-23	---	7.9-9.0	15-25	0	0.0-1.0	0-1
	48-66	10-23	---	7.9-9.0	5-20	0	0.0-1.0	0-1
Rd:								
Romound-----	0-4	12-22	---	7.9-9.0	5-15	0-2	1.0-8.0	0-5
	4-14	15-22	---	7.9-9.0	5-15	0-3	2.0-8.0	0-8
	14-24	4.1-20	---	7.4-9.0	1-10	25-55	4.0-16.0	0-10
	24-30	4.1-20	---	7.4-8.4	1-10	25-45	4.0-16.0	0-13
	30-60	---	---	---	---	---	---	---
RF:								
Rock outcrop-----	0-60	---	---	---	---	---	---	---
Rubble land-----	0-60	---	---	---	0	0	0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
Rt:								
Raton-----	0-6	18-29	---	6.6-7.3	0	0	0	0
	6-9	18-37	---	6.6-7.3	0	0	0	0
	9-17	20-42	---	6.6-7.3	0	0	0	0
	17-60	---	---	---	---	---	---	---
RyC:								
Ryegate-----	0-10	4.9-18	---	6.6-7.8	0	0	0	0
	10-21	16-27	---	6.6-7.8	0	0	0	0
	21-30	16-27	---	6.6-8.4	0-2	0	0	0
	30-32	16-27	---	6.6-8.4	0-5	0	0	0
	32-34	7.6-16	---	7.9-9.0	15-25	0	0.0-2.0	0
	34-60	---	---	---	---	---	---	---
RzD:								
Rizozo, moist-----	0-4	8.6-17	---	7.4-8.4	0-5	0	0.0-2.0	0
	4-11	7.6-20	---	7.4-8.4	5-15	0	0.0-2.0	0
	11-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---
Sc:								
Schwacheim-----	0-5	10-25	---	6.1-7.3	0	0	0	0
	5-9	10-25	---	6.1-7.3	0	0	0	0
	9-14	10-30	---	6.1-7.3	0	0	0	0
	14-18	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
ScR:								
Schwacheim-----	0-5	10-25	---	6.1-7.3	0	0	0	0
	5-9	10-25	---	6.1-7.3	0	0	0	0
	9-14	10-30	---	6.1-7.3	0	0	0	0
	14-18	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---
SG:								
Ovmesa-----	0-2	7.8-15	---	7.4-8.4	5-15	25-40	8.0-16.0	1-10
	2-9	5.7-12	---	7.4-8.4	1-10	35-55	8.0-16.0	1-10
	9-14	---	---	---	---	---	---	---
	14-40	---	---	---	---	---	---	---
Romound-----	0-4	12-22	---	7.9-9.0	5-15	0-2	1.0-8.0	0-5
	4-14	15-22	---	7.9-9.0	5-15	0-3	2.0-8.0	0-8
	14-24	4.1-20	---	7.4-9.0	1-10	25-55	4.0-16.0	0-10
	24-30	4.1-20	---	7.4-8.4	1-10	25-45	4.0-16.0	0-13
	30-60	---	---	---	---	---	---	---
ShD:								
Shingle-----	0-4	21-28	---	7.4-8.4	1-10	0	0.0-2.0	0-2
	4-11	16-28	---	7.4-8.4	1-15	1-5	0.0-4.0	0-4
	11-60	---	---	---	---	1-5	0.0-4.0	0
Penrose-----	0-5	11-18	---	7.9-8.4	25-75	0	0.0-2.0	0
	5-9	9.3-17	---	7.9-9.0	40-75	0-1	0.0-2.0	0-5
	9-15	4.7-20	---	7.9-9.0	40-75	0-1	0.0-4.0	0-5
	15-26	---	---	---	---	---	---	---



Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
SL:								
Scandard-----	0-1	30-60	---	5.1-6.5	0	0	50.0-90.0	0
	1-7	8.9-17	---	6.1-7.3	0	0	0	0
	7-11	8.6-17	---	5.6-6.5	0	0	0	0
	11-18	14-27	---	5.6-6.5	0	0	0	0
	18-25	14-27	---	5.6-6.5	0	0	0	0
	25-27	---	---	---	0	0	---	0
	27-60	---	---	---	0	0	---	0
Leadville-----	0-2	50-90	30-60	5.1-6.5	0	0	0	0
	2-16	7.6-17	---	6.1-7.3	0	0	0	0
	16-22	7.6-16	---	5.6-7.3	0	0	0	0
	22-48	14-27	---	5.6-7.3	0	0	0	0
	48-65	14-23	---	6.1-7.3	0	0	0	0
Rock outcrop-----	0-60	---	---	---	---	---	---	---
SM:								
Schamber-----	0-4	7.8-15	---	7.4-8.4	0-2	0	0	0
	4-12	4.7-12	---	7.4-8.4	2-15	0	0	0
	12-60	0.8-7.4	---	7.4-8.4	2-15	0	0.0-2.0	0
Midway-----	0-3	18-32	---	7.4-8.4	1-5	0-1	2.0-4.0	0-5
	3-8	6.0-25	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	8-14	6.0-25	---	7.9-9.0	5-15	1-15	2.0-8.0	1-15
	14-24	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
Sn:								
Sitcan-----	0-10	13-21	---	6.6-7.8	0	0	0	0
	10-15	15-22	---	6.6-7.8	0	0	0	0
	15-28	16-28	---	7.4-7.8	0	0	0	0
	28-33	16-28	---	7.4-8.4	0-1	0	0	0
	33-40	11-22	---	7.4-8.4	1-5	0	0	0
	40-70	7.6-20	---	7.9-9.0	1-10	0-1	0.0-4.0	0-2
SR:								
Saruche-----	0-4	27-31	---	6.1-7.3	0	0	0.0-2.0	0
	4-16	23-38	---	6.6-7.8	0	0	0.0-2.0	0
	16-20	---	---	---	---	---	---	---
	20-30	---	---	---	---	---	---	---
Rombo-----	0-4	23-32	---	6.6-7.8	0	0	0	0
	4-22	27-38	---	6.6-7.8	0	0	0	0
	22-34	23-37	---	6.6-7.8	3-5	0	0.0-1.0	0-2
	34-44	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---
Sw:								
Molinaro-----	0-17	16-23	---	6.1-7.8	0	0	0	0
	17-31	16-23	---	6.6-7.8	0	0	0	0
	31-41	17-25	---	6.6-7.8	0-2	0	0	0
	41-66	15-25	---	7.4-8.4	1-5	0	0.0-2.0	0-2

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
TbA:								
Trementina, warm-----	0-8	17-23	---	6.6-7.8	0	0	0	0
	8-14	17-23	---	6.6-7.8	0	0	0	0
	14-21	22-29	---	6.6-8.4	0-2	0	0	0
	21-29	16-28	---	7.4-8.4	1-5	0	0	0
	29-39	16-28	---	7.4-8.4	1-5	0	0.0-0.5	0
	39-50	16-28	---	7.4-8.4	1-5	0	0.0-1.0	0
	50-72	12-25	---	7.4-8.4	1-10	0-2	0.0-4.0	0
TeE:								
Tecolote-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-5	4.8-17	---	6.6-7.8	0	0	0	0
	5-15	4.6-17	---	6.6-7.3	0	0	0	0
	15-25	4.6-20	---	6.1-7.3	0	0	0	0
	25-60	14-27	---	6.1-7.3	0	0	0	0
TF:								
Torreón, stony-----	0-7	26-39	---	6.6-7.3	0	0	0	0
	7-11	23-45	---	6.6-7.8	0-5	0	0	0
	11-29	18-39	---	6.6-7.8	0-5	0	0	0
	29-37	18-39	---	7.4-7.8	5	0	0	0
	37-60	5.2-20	---	7.4-8.4	15-24	0	0.0-2.0	0
Fuera-----	0-2	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	2-7	15-22	---	6.1-7.3	0	0	0	0
	7-10	14-30	---	6.1-7.3	0	0	0	0
	10-11	14-30	---	6.1-7.3	0	0	0	0
	11-27	29-44	---	6.1-7.3	0	0	0	0
	27-47	29-44	---	6.1-7.3	0	0	0	0
	47-60	23-37	---	6.1-7.8	0	0	0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
TgD:								
Trujillo-----	0-5	9.1-18	---	6.1-7.3	0	0	0	0
	5-8	9.1-18	---	6.1-7.3	0	0	0	0
	8-19	16-28	---	6.1-7.3	0	0	0	0
	19-26	16-28	---	6.1-7.3	0	0	0	0
	26-35	16-28	---	6.1-7.3	0	0	0	0
	35-60	11-20	---	6.6-7.3	0	0	0	0
	60-65	11-21	---	6.6-7.8	0-2	0	0.0-2.0	0-2
TgE:								
Trujillo-----	0-5	9.1-18	---	6.1-7.3	0	0	0	0
	5-8	9.1-18	---	6.1-7.3	0	0	0	0
	8-19	16-28	---	6.1-7.3	0	0	0	0
	19-26	16-28	---	6.1-7.3	0	0	0	0
	26-35	16-28	---	6.1-7.3	0	0	0	0
	35-60	11-20	---	6.6-7.3	0	0	0	0
	60-65	11-21	---	6.6-7.8	0-2	0	0.0-2.0	0-2
TL:								
Torreon, stony-----	0-7	26-39	---	6.6-7.3	0	0	0	0
	7-11	23-45	---	6.6-7.8	0-5	0	0	0
	11-29	18-39	---	6.6-7.8	0-5	0	0	0
	29-37	18-39	---	7.4-7.8	5	0	0	0
	37-60	5.2-20	---	7.4-8.4	15-24	0	0.0-2.0	0
Lorencito-----	0-4	21-28	---	6.1-7.8	0	0	0	0
	4-10	23-37	---	6.1-7.8	0	0	0.0-2.0	0-2
	10-16	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
TmD:								
Trujillo-----	0-9	13-21	---	6.1-7.3	0	0	0	0
	9-13	15-28	---	6.1-7.3	0	0	0	0
	13-20	16-28	---	6.1-7.3	0	0	0	0
	20-36	16-28	---	6.1-7.3	0	0	0	0
	36-58	12-22	---	6.6-7.8	0	0	0	0-0
	58-70	12-22	---	6.6-7.8	0-3	0	0.0-2.0	0-2
TnA:								
Trementina, cool-----	0-4	23-29	---	6.6-7.8	0	0	0	0
	4-20	22-29	---	6.6-7.8	0	0	0	0
	20-31	21-29	---	6.6-7.8	1-5	0	0	0
	31-60	21-28	---	7.4-8.4	5-10	0	0.0-2.0	0
TnB:								
Trementina, dry-----	0-6	17-23	---	6.6-7.8	0	0	0	0
	6-15	17-23	---	6.6-7.8	0	0	0	0
	15-22	21-29	---	6.6-7.8	0	0	0	0
	22-30	20-28	---	7.4-8.4	0-5	0	0	0
	30-44	16-28	---	7.4-8.4	1-10	0	0.0-4.0	0-2
	44-65	12-22	---	7.4-8.4	1-10	0	0.0-4.0	0-2
To:								
Torreon-----	0-5	18-31	---	6.6-7.3	0	0	0	0
	5-13	23-45	---	6.6-7.8	0-2	0	0	0
	13-27	18-39	---	6.6-7.8	0-4	0	0	0
	27-38	6.0-25	---	7.4-8.4	5-15	0	0.0-2.0	0
	38-56	5.2-25	---	7.4-8.4	15-30	0	0.0-2.0	0
	56-72	4.8-20	---	7.9-8.4	15-25	0	0.0-2.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
ToD:								
Torreón-----	0-7	26-44	---	6.6-7.3	0	0	0	0
	7-10	23-45	---	6.6-7.8	0-5	0	0	0
	10-29	18-42	---	6.6-7.8	0-5	0	0	0
	29-35	18-42	---	7.4-8.4	5-10	0	0	0
	35-45	5.2-20	---	7.4-8.4	15-24	0	0.0-2.0	0
	45-64	5.2-20	---	7.4-8.4	15-24	0	0.0-2.0	0
ToE:								
Torreón-----	0-5	18-31	---	6.6-7.3	0	0	0	0
	5-13	23-45	---	6.6-7.8	0-2	0	0	0
	13-27	18-39	---	6.6-7.8	0-4	0	0	0
	27-38	6.0-25	---	7.4-8.4	5-15	0	0.0-2.0	0
	38-56	5.2-25	---	7.4-8.4	15-30	0	0.0-2.0	0
	56-72	4.8-20	---	7.9-8.4	15-25	0	0.0-2.0	0
Torreón, stony-----	0-7	26-39	---	6.6-7.3	0	0	0	0
	7-11	23-45	---	6.6-7.8	0-5	0	0	0
	11-29	18-39	---	6.6-7.8	0-5	0	0	0
	29-37	18-39	---	7.4-7.8	5	0	0	0
	37-60	5.2-20	---	7.4-8.4	15-24	0	0.0-2.0	0
TsD:								
Travessilla-----	0-5	8.6-16	---	7.4-8.4	0-5	0	0	0
	5-11	4.1-15	---	7.4-8.4	1-15	0	0.0-2.0	0
	11-14	4.1-15	---	7.4-8.4	1-15	0	0.0-2.0	0
	14-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
<b>TsE:</b>								
Torreón-----	0-7	26-39	---	6.6-7.3	0	0	0	0
	7-11	23-45	---	6.6-7.8	0-5	0	0	0
	11-29	18-39	---	6.6-7.8	0-5	0	0	0
	29-37	18-39	---	7.4-7.8	5	0	0	0
	37-60	5.2-20	---	7.4-8.4	15-24	0	0.0-2.0	0
<b>TsF:</b>								
Travessilla-----	0-5	8.6-16	---	7.4-8.4	0-5	0	0	0
	5-11	4.1-15	---	7.4-8.4	1-15	0	0.0-2.0	0
	11-14	4.1-15	---	7.4-8.4	1-15	0	0.0-2.0	0
	14-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---
<b>Us:</b>								
Aridic Calciustolls--	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-6	17-23	---	6.6-7.3	0-2	0	0	0
	6-14	17-29	---	7.4-8.4	5-15	0	0	0
	14-19	16-28	---	7.4-8.4	15-35	0	0.0-2.0	0-5
	19-42	14-22	---	7.9-9.0	15-50	0-2	0.0-2.0	0-5
	42-60	---	---	---	---	---	---	---
<b>VB:</b>								
Vona, overblown-----	0-13	2.1-7.5	---	6.6-7.8	0	0	0	0
	13-19	8.6-15	---	6.6-7.8	0	0	0	0
	19-29	8.6-15	---	6.6-7.8	0-2	0	0	0
	29-40	4.6-8.1	---	7.9-8.4	2-10	0	0.0-2.0	0
	40-72	7.6-13	---	7.9-8.4	0-5	0-2	0.0-4.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
VD:								
Dargol-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-6	17-22	---	5.6-6.5	0	0	0	0
	6-10	27-41	---	5.6-6.5	0	0	0	0
	10-29	26-40	---	5.6-6.5	0	0	0	0
	29-60	---	---	---	---	---	---	---
Stout-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-5	4.6-13	---	6.1-7.3	0	0	0	0
	5-16	4.1-15	---	6.1-7.3	0	0	0	0
	16-60	---	---	---	---	---	---	---
Vamer-----	0-1	50-90	30-60	5.6-6.5	0	0	0.0-2.0	0
	1-3	11-18	---	6.1-7.3	0	0	0	0
	3-7	11-18	---	6.1-7.3	0	0	0	0
	7-16	6.0-27	---	6.1-7.3	0	0	0	0
	16-60	---	---	---	---	---	---	---
VnC:								
Vona-----	0-5	4.8-13	---	6.6-7.8	0	0	0	0
	5-12	8.6-15	---	6.6-7.8	0	0	0	0
	12-17	8.6-15	---	6.6-7.8	0-2	0	0	0
	17-38	8.6-15	---	7.9-8.4	0-5	0	0.0-2.0	0
	38-41	2.6-12	---	7.9-8.4	2-15	0-2	0.0-4.0	0
	41-68	2.6-12	---	7.9-8.4	2-15	0-2	0.0-4.0	0



Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
VoB:								
Vona-----	0-5	4.8-13	---	6.6-7.8	0	0	0	0
	5-12	8.6-15	---	6.6-7.8	0	0	0	0
	12-17	8.6-15	---	6.6-7.8	0-2	0	0	0
	17-38	8.6-15	---	7.9-8.4	0-5	0	0.0-2.0	0
	38-41	2.6-12	---	7.9-8.4	2-15	0-2	0.0-4.0	0
	41-68	2.6-12	---	7.9-8.4	2-15	0-2	0.0-4.0	0
VoC:								
Vonid-----	0-6	4.8-13	---	6.6-7.8	0	0	0	0
	6-11	8.6-15	---	6.6-7.8	0	0	0	0
	11-16	8.6-15	---	7.4-7.8	0-2	0	0	0
	16-24	8.6-15	---	7.4-8.4	0-5	0	0	0
	24-33	2.6-12	---	7.4-8.4	5-10	0-1	0.0-2.0	0
	33-60	2.6-12	---	7.9-8.4	5-10	0-2	0.0-2.0	0
VT:								
Villedry-----	0-4	9.7-15	---	7.4-8.4	0-5	0	0	0
	4-7	9.7-16	---	7.4-8.4	1-10	0	0	0
	7-15	14-19	---	7.4-8.4	1-10	0	0.0-0.5	0
	15-25	14-19	---	7.4-8.4	10-20	0	0.0-0.5	0-5
	25-33	10-18	---	7.9-9.0	10-20	0	0.0-2.0	0-5
	33-38	9.1-16	---	7.9-9.0	15-40	0-2	0.0-2.0	0-5
	38-60	---	---	---	---	---	---	---
Travessilla-----	0-5	8.6-16	---	7.4-8.4	0-5	0	0	0
	5-11	4.1-15	---	7.4-8.4	1-15	0	0.0-2.0	0
	11-14	4.1-15	---	7.4-8.4	1-15	0	0.0-2.0	0
	14-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
VtC:								
Valent-----	0-5	1.8-5.0	---	6.6-7.8	0	0	0	0
	5-65	1.4-6.1	---	6.6-7.8	0	0	0	0
W:								
Water-----	---	---	---	---	---	---	---	---
Wa:								
Wapiti-----	0-6	15-20	---	6.6-7.8	0	0	0	0
	6-14	17-28	---	7.4-7.8	0	0	0	0
	14-27	16-28	---	7.4-8.4	5-15	0	0	0
	27-38	16-24	---	7.9-8.4	15-30	0	0	0
	38-70	16-24	---	7.9-8.4	5-15	0	0	0
WC:								
Plughat-----	0-3	15-22	---	6.6-7.8	0-2	0	0	0
	3-6	21-28	---	7.9-8.4	0-5	0	0	0
	6-13	21-28	---	7.9-8.4	2-10	0	0	0
	13-27	21-28	---	7.9-9.0	5-15	0	0	0
	27-34	13-21	---	7.9-9.0	15-25	0-2	0.0-2.0	0
	34-48	13-21	---	7.9-9.0	15-40	0-2	0.0-2.0	0
	48-60	---	---	---	---	---	---	---
Villegreen-----	0-6	15-22	---	7.4-8.4	0	0	0	0
	6-9	21-28	---	7.4-8.4	1-5	0	0.0-2.0	0
	9-15	21-28	---	7.4-8.4	5-15	0	0.0-2.0	0
	15-24	21-28	---	7.9-8.4	5-15	0	0.0-2.0	0
	24-32	13-27	---	7.9-9.0	15-30	0-2	0.0-2.0	0
	32-60	---	---	---	---	---	---	---

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
WeB:								
Wiley-----	0-4	13-22	---	6.6-7.8	0	0	0	0
	4-9	21-28	---	7.9-8.4	0-5	0	0	0
	9-15	18-28	---	7.9-8.4	1-5	0	0.0-0.5	0
	15-26	18-28	---	7.9-8.4	5-15	0	0.0-1.0	0-3
	26-35	14-28	---	7.9-9.0	5-15	0	0.0-2.0	0-5
	35-44	14-28	---	7.9-9.0	5-15	0	0.0-2.0	0-7
	44-72	13-21	---	7.9-9.0	15-30	0-3	2.0-8.0	0-5
WM:								
Minnequa-----	0-4	15-22	---	7.9-8.4	10-25	0-1	0.0-2.0	0-2
	4-14	13-27	---	7.9-9.0	15-39	0-5	0.0-4.0	0-8
	14-24	13-27	---	7.9-9.0	15-39	0-5	0.0-4.0	0-8
	24-29	---	---	---	---	---	---	---
	29-60	---	---	---	---	---	---	---
Wilid-----	0-6	13-22	---	7.4-8.4	0-3	0	0	0
	6-10	19-28	---	7.9-8.4	5-10	0	0	0
	10-30	19-28	---	7.9-8.4	5-10	0	0	0
	30-44	19-28	---	7.9-8.4	5-10	0	0	0
	44-60	13-21	---	7.9-9.0	5-15	0-2	0.0-4.0	0
WrB:								
Wilid-----	0-6	22-27	---	7.4-8.4	0-3	0	0	0
	6-18	19-27	---	7.9-8.4	5-10	0	0	0
	18-36	13-21	---	7.9-8.4	5-15	0-2	0.0-2.0	0
	36-60	13-21	---	7.9-9.0	5-15	0-2	0.0-4.0	0

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	Inches	meq/100 g	meq/100 g	pH	Pct.	Pct.	mmhos/cm	
WV:								
Almagre-----	0-5	9.7-15	---	7.4-8.4	0-5	0	0	0
	5-9	9.6-14	---	7.4-8.4	1-5	0	0	0
	9-23	13-19	---	7.4-8.4	1-10	0	0	0
	23-30	14-19	---	7.4-8.4	5-15	0	0	0
	30-40	11-19	---	7.9-8.4	15-25	0	0	0
	40-50	9.1-14	---	7.9-9.0	15-40	0-2	0.0-4.0	0
	50-60	---	---	---	---	---	---	---
Villedry-----	0-4	9.7-15	---	7.4-8.4	0-5	0	0	0
	4-7	9.7-16	---	7.4-8.4	1-10	0	0	0
	7-15	14-19	---	7.4-8.4	1-10	0	0.0-0.5	0
	15-25	14-19	---	7.4-8.4	10-20	0	0.0-0.5	0-5
	25-33	10-18	---	7.9-9.0	10-20	0	0.0-2.0	0-5
	33-38	9.1-16	---	7.9-9.0	15-40	0-2	0.0-2.0	0-5
	38-60	---	---	---	---	---	---	---
WyB:								
Willid-----	0-6	13-22	---	7.4-8.4	0-3	0	0	0
	6-10	19-28	---	7.9-8.4	5-10	0	0	0
	10-30	19-28	---	7.9-8.4	5-10	0	0	0
	30-44	19-28	---	7.9-8.4	5-10	0	0	0
	44-60	13-21	---	7.9-9.0	5-15	0-2	0.0-4.0	0
YaA:								
Yattle-----	0-4	4.6-16	---	7.4-8.4	0-1	0	0	0
	4-28	7.1-15	---	7.4-8.4	1-5	0	0	0
	28-33	6.2-15	---	7.4-8.4	1-5	0	0.0-2.0	0
	33-43	6.2-15	---	7.9-9.0	5-15	0	2.0-8.0	1-8
	43-70	6.2-15	---	7.9-9.0	5-15	0-2	2.0-8.0	1-8

Table 22.--Chemical soil properties--continued

Map symbol and soil name	Depth	Cation exchange capacity	Effective cation exchange capacity	Soil reaction	Calcium carbon- ate	Gypsum	Salinity	Sodium adsorp- tion ratio
	<u>Inches</u>	<u>meq/100 g</u>	<u>meq/100 g</u>	<u>pH</u>	<u>Pct.</u>	<u>Pct.</u>	<u>mmhos/cm</u>	
YaC:								
Yattle-----	0-4	4.6-16	---	7.4-8.4	0-1	0	0	0
	4-28	7.1-15	---	7.4-8.4	1-5	0	0	0
	28-33	6.2-15	---	7.4-8.4	1-5	0	0.0-2.0	0
	33-43	6.2-15	---	7.9-9.0	5-15	0	2.0-8.0	1-8
	43-70	6.2-15	---	7.9-9.0	5-15	0-2	2.0-8.0	1-8
ZR:								
Rizozo-----	0-3	8.6-17	---	7.4-8.4	0-5	0	0.0-2.0	0
	3-8	7.6-20	---	7.4-8.4	5-15	0	0.0-2.0	0
	8-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---
ZRF:								
Rizozo-----	0-3	8.6-17	---	7.4-8.4	0-5	0	0.0-2.0	0
	3-8	7.6-20	---	7.4-8.4	5-15	0	0.0-2.0	0
	8-60	---	---	---	---	---	---	---
Rock outcrop-----	0-60	---	---	---	---	---	---	---

Table 23.--Soil features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
AA: Ayon-----	---	---	---	---	0	---	Moderate	Low	Low
Apache-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
AC: Ayon-----	---	---	---	---	0	---	Moderate	Low	Low
Capulin-----	---	---	---	---	0	---	Moderate	Low	Low
AcC: Acantilado-----	---	---	---	---	0	---	Moderate	Low	Low
AED: Dams, earthen dam-----	---	---	---	---	---	---	---	---	---
AnB: Ascalon-----	---	---	---	---	0	---	Moderate	Low	Low
Ap: Apache-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
AR: Calcidic Argiustolls---	Paralithic bedrock	40-72	---	Moderately cemented	0	---	Low	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
AsB: Ascalon, overblown-----	---	---	---	---	0	---	Moderate	Low	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
AV:									
Aguilar-----	Natric	2-6	---	---	0	---	Low	High	Low
Beckton-----	Natric	2-20	---	---	0	---	Low	High	Low
AvC:									
Aguilar-----	Natric	2-7	---	---	0	---	Low	High	Low
AW:									
Allens Park-----	Lithic bedrock	20-40	---	Very strongly cemented Indurated	0	---	Moderate	Low	Low
Wahatoya-----	Lithic bedrock	20-40	---		0	---	Moderate	Low	Moderate
BaA:									
Baca-----	---	---	---	---	0	---	Low	Moderate	Low
BaB:									
Bacid-----	---	---	---	---	0	---	Low	Moderate	Low
BaC:									
Baca, Cool-----	---	---	---	---	0	---	Low	Moderate	Low
BcA:									
Baca, Cool-----	---	---	---	---	0	---	Low	Moderate	Low
Bk:									
Fallriver-----	---	---	---	---	0	---	Moderate	Low	Moderate
BnA:									
Bacid-----	---	---	---	---	0	---	Low	Moderate	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
BT:									
Barela-----	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
Raton-----	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
BwA:									
Bloom-----	---	---	---	---	0	---	High	High	Low
Bx:									
Boxcanyon-----	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
CaD:									
Razor-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Low	Moderate	Low
CC:									
Chacuaco-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Capulin-----	---	---	---	---	0	---	Moderate	Low	Low
CD:									
Chacuaco-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Dalero-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
Co:									
Collegiate-----	---	---	---	---	0	---	High	High	Low
CpA:									
Calemore-----	---	---	---	---	0	---	Moderate	Low	Low



Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
CpB: Calemore-----	---	---	---	---	0	---	Moderate	Low	Low
CpC: Capulin-----	---	---	---	---	0	---	Moderate	Low	Low
CpT: Capulin-----	---	---	---	---	0	---	Moderate	Low	Low
Torreón-----	---	---	---	---	0	---	Low	Moderate	Low
Ct: Breece-----	---	---	---	---	0	---	Moderate	Low	Low
CwC: Cumulic Cryaquolls----	---	---	---	---	0	---	High	High	Low
DaE: Dalerose-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
De: Davtone-----	---	---	---	---	0	---	Moderate	Low	Low
DFV: Fuera-----	---	---	---	---	0	---	Low	Moderate	Low
Dargol-----	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Vamer-----	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
DH:									
Davtone-----	---	---	---	---	0	---	Moderate	Low	Low
Histic Cryaquolls-----	---	---	---	---	0	---	High	High	Low
Dm:									
Demayo-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Ds:									
Des Moines-----	---	---	---	---	0	---	Low	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Dt:									
Davtone-----	---	---	---	---	0	---	Moderate	Low	Low
Dv:									
Feterita-----	---	---	---	---	---	---	Low	High	Low
Ec:									
Eguaje-----	---	---	---	---	0	---	Low	Moderate	Low
Demayo-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
EL:									
Ellicott-----	---	---	---	---	0	---	Low	Low	Low
Las Animas-----	---	---	---	---	0	---	High	High	Low
ES:									
Embargo-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Moderate	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
ES: Schwacheim-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
FcB: Wapiti-----	---	---	---	---	0	---	Moderate	Low	Low
FcC: Fort-----	---	---	---	---	0	---	Moderate	Low	Low
FcD: Fort-----	---	---	---	---	0	---	Moderate	Low	Low
Fp: Fishers-----	---	---	---	---	0	---	Low	Moderate	Low
FtC: Olnest-----	---	---	---	---	0	---	Moderate	Low	Low
FuD: Bandarito-----	---	---	---	---	0	---	Low	Moderate	Low
FuE: Bandarito-----	---	---	---	---	0	---	Low	Moderate	Low
FW: Bandarito-----	---	---	---	---	0	---	Low	Moderate	Low
FW: Fishers-----	---	---	---	---	0	---	Low	Moderate	Low
FyB: Furia-----	---	---	---	---	0	---	High	High	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
GA: Gulnare-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Allens Park-----	Lithic bedrock	20-40	---	Very strongly cemented	0	---	Moderate	Low	Low
GC: Groomer-----	---	---	---	---	0	---	Moderate	Moderate	Low
Cucharas-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Moderate	Moderate	Low
GgB: Glenberg-----	---	---	---	---	0	---	Moderate	High	Low
GmE: Aquic Dystrocryepts----	---	---	---	---	0	---	High	High	Moderate
Gn: Angostura-----	---	---	---	---	0	---	Moderate	Low	Moderate
GP: Pits, gravel-----	---	---	---	---	---	---	---	---	---
GR: Gulnare-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Hn: Hoehne-----	---	---	---	---	0	---	Moderate	High	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
HvA: Haversid-----	---	---	---	---	0	---	Moderate	High	Low
HyD: Humbarsprings-----	---	---	---	---	0	---	Moderate	Low	Low
K2D: Kimera-----	---	---	---	---	0	---	Moderate	Low	Low
Chicosa-----	Strongly contrasting textural stratification	14-30	---	---	0	---	Moderate	Low	Low
KI: Kandrix-----	---	---	---	---	0	---	Moderate	Low	Low
Chicosa-----	Strongly contrasting textural stratification	14-30	---	---	0	---	Moderate	Low	Low
Km: Kimera-----	---	---	---	---	0	---	Moderate	Low	Low
KmC: Wilid-----	---	---	---	---	0	---	Moderate	Low	Low
Kimera-----	---	---	---	---	0	---	Moderate	Low	Low
KO: Kimera-----	---	---	---	---	0	---	Moderate	Low	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
KO: Oterodry-----	---	---	---	---	0	---	Moderate	Low	Low
Kw: Kandrix-----	---	---	---	---	0	---	Moderate	Low	Low
KwC: Kandrix-----	---	---	---	---	0	---	Moderate	High	Low
Wiley-----	---	---	---	---	0	---	Moderate	Moderate	Low
La: Lanola-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Lb: La Brier-----	---	---	---	---	0	---	Low	Moderate	Low
Ld: Leadville-----	---	---	---	---	0	---	Moderate	Low	Low
LG: Manzanst-----	---	---	---	---	0	---	Low	Moderate	Low
Ritoazul-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Low	Moderate	Low
LH: Leadville-----	---	---	---	---	0	---	Moderate	Moderate	Low
Howlett-----	---	---	---	---	0	---	Moderate	Low	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
Lo:									
La Brier-----	---	---	---	---	0	---	Low	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
LoA:									
Limon-----	---	---	---	---	0	---	Low	High	Low
LR:									
Fallriver-----	---	---	---	---	0	---	Moderate	Low	Moderate
Rubble land-----	---	---	---	---	0	---	---	---	---
LRT:									
Lorencito-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	Moderate	Low
Rombo-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Low	Moderate	Low
Sarcillo-----	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Ls:									
Las Animas-----	---	---	---	---	0	---	High	High	Low
LST:									
Lorencito-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	Moderate	Low
Sarcillo-----	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Trujillo-----	---	---	---	---	0	---	Moderate	Low	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
Lt: Littlepine-----	---	---	---	---	0	---	Moderate	Low	Low
LvD: Lorencito-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	Moderate	Low
LW: Littlepine-----	---	---	---	---	0	---	Moderate	Low	Low
Wahatoya-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
MaB: Mauricanyon, warm-----	---	---	---	---	0	---	Moderate	Low	Low
MaW: Mauricanyon, wet-----	---	---	---	---	0	---	Moderate	High	Low
MD: Dumps, mine-----	---	---	---	---	0	---	---	---	---
Mf: Moran-----	---	---	---	---	0	---	Moderate	Low	Moderate
MG: Tercio-----	---	---	---	---	0	---	Moderate	Moderate	Low
Graneros-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Moderate	Moderate	Low



Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
MGR:									
Midway, moist-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	High	Low
Ritoazul-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Low	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
MI:									
Minqwet-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Moderate	Low	Low
Wiley-----	---	---	---	---	0	---	Moderate	Moderate	Low
MIK:									
Midway-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	High	Low
Chicosa-----	Strongly contrasting textural stratification	14-30	---	---	0	---	Moderate	Low	Low
MnA:									
Manzanst-----	---	---	---	---	0	---	Low	Moderate	Low
MnB:									
Manzanst-----	---	---	---	---	0	---	Low	Moderate	Low
MnW:									
Aquic Haplustalfs-----	---	---	---	---	0	---	Low	High	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
MoA: Mauricanyon-----	---	---	---	---	0	---	Moderate	Low	Low
MoB: Mauricanyon, dry-----	---	---	---	---	0	---	Moderate	Low	Low
MoR: Mion-----	Paralithic bedrock	6-20	---	Very weakly cemented	0	---	Low	High	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
MP: Midway-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	High	Low
Razor-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Low	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
MR: Mirror-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Moderate
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
MvC: Manvel-----	---	---	---	---	0	---	Moderate	Low	Low
MyD: Midway-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	High	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
MzA: Manzanola-----	---	---	---	---	0	---	Low	High	Low
MzB: Manzanola-----	---	---	---	---	0	---	Low	High	Low
NM: Nopurg-----	---	---	---	---	0	---	Moderate	Moderate	Moderate
Mitotes-----	Strongly contrasting textural stratification	48-60	---	---	0	---	Moderate	Moderate	Moderate
OeC: Otero-----	---	---	---	---	0	---	Moderate	Low	Low
OtD: Oterodry-----	---	---	---	---	0	---	Moderate	Low	Low
OyB: Olnest-----	---	---	---	---	0	---	Moderate	Low	Low
OyC: Olnest-----	---	---	---	---	0	---	Moderate	Low	Low
PeD: Penrose-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
PeF: Penrose-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
PeF: Midway-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	High	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
PM: Penrose-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Minnequa-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Moderate	Low	Low
PnD: Penrose, moist-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
RaB: Ravine-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Low	Moderate	Low
RaC: Ritoazul-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Low	Moderate	Low
RB: Raton-----	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
Barela-----	Lithic bedrock	40-60	---	Indurated	0	---	Low	Moderate	Low
Rc: Raku-----	---	---	---	---	0	---	Low	Moderate	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
RcA: Raku-----	---	---	---	---	0	---	Low	Moderate	Low
Rd: Romound-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Moderate	High	Low
RF: Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Rubble land-----	---	---	---	---	0	---	---	---	---
Rt: Raton-----	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
RyC: Ryegate-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
RzD: Rizozo, moist-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Sc: Schwacheim-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
ScR: Schwacheim-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
SG: Ovmesa-----	Paralithic bedrock	8-20	---	Very weakly cemented	0	---	Moderate	High	Low
Romound-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Moderate	High	Low
ShD: Shingle-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Moderate	Low	Low
Penrose-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
SL: Scandard-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Leadville-----	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
SM: Schamber-----	---	---	---	---	0	---	Low	Low	Low
Midway-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	High	Low
Sn: Sitcan-----	---	---	---	---	0	---	Moderate	Low	Low
SR: Saruche-----	Paralithic bedrock	8-20	---	Very weakly cemented	0	---	Low	Moderate	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
SR: Rombo-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Low	Moderate	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
Sw: Molinaro-----	---	---	---	---	0	---	Moderate	Low	Low
TbA: Trementina, warm-----	---	---	---	---	0	---	Moderate	High	Low
TeE: Tecolote-----	---	---	---	---	0	---	Moderate	Low	Low
TF: Torreon, stony-----	---	---	---	---	0	---	Low	Moderate	Low
Fuera-----	---	---	---	---	0	---	Low	Moderate	Low
TgD: Trujillo-----	---	---	---	---	0	---	Moderate	Low	Low
TgE: Trujillo-----	---	---	---	---	0	---	Moderate	Low	Low
TL: Torreon, stony-----	---	---	---	---	0	---	Low	Moderate	Low
Lorencito-----	Paralithic bedrock	10-20	---	Very weakly cemented	0	---	Low	Moderate	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
TmD: Trujillo-----	---	---	---	---	0	---	Moderate	Low	Low
TnA: Trementina, cool-----	---	---	---	---	0	---	Moderate	Low	Low
TnB: Trementina, dry-----	---	---	---	---	0	---	Moderate	Low	Low
To: Torreon-----	---	---	---	---	0	---	Low	Moderate	Low
ToD: Torreon-----	---	---	---	---	0	---	Low	Moderate	Low
ToE: Torreon-----	---	---	---	---	0	---	Low	Moderate	Low
Torreon, stony-----	---	---	---	---	0	---	Low	Moderate	Low
TsD: Travessilla-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
TsE: Torreon-----	---	---	---	---	0	---	Low	Moderate	Low
TsF: Travessilla-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---



Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
Us: Aridic Calciustolls----	Paralithic bedrock	20-71	---	Weakly cemented	0	---	Moderate	Low	Low
VB: Vona, overblown-----	---	---	---	---	0	---	Moderate	Low	Low
VD: Dargol-----	Lithic bedrock	20-40	---	Indurated	0	---	Low	Moderate	Low
Stout-----	Lithic bedrock	10-20	---	Indurated	0	---	Moderate	Low	Low
Vamer-----	Lithic bedrock	10-20	---	Indurated	0	---	Low	Moderate	Low
VnC: Vona-----	---	---	---	---	0	---	Moderate	Low	Low
VoB: Vona-----	---	---	---	---	0	---	Moderate	Low	Low
VoC: Vonid-----	---	---	---	---	0	---	Moderate	Low	Low
VT: Villedry-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
Travessilla-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
VtC: Valent-----	---	---	---	---	0	---	Low	Low	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
W: Water-----	---	---	---	---	---	---	---	---	---
Wa: Wapiti-----	---	---	---	---	0	---	Moderate	Low	Low
WC: Plughat-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Villegreen-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
WeB: Wiley-----	---	---	---	---	0	---	Moderate	Moderate	Low
WM: Minnequa-----	Paralithic bedrock	20-40	---	Very weakly cemented	0	---	Moderate	Low	Low
Wilid-----	---	---	---	---	0	---	Moderate	Low	Low
WrB: Wilid-----	---	---	---	---	0	---	Moderate	Low	Low
WV: Almagre-----	Lithic bedrock	40-60	---	Indurated	0	---	Moderate	Low	Low
Villedry-----	Lithic bedrock	20-40	---	Indurated	0	---	Moderate	Low	Low
WyB: Wilid-----	---	---	---	---	0	---	Moderate	Low	Low

Table 23.--Soil features--continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		<u>In.</u>	<u>In.</u>		<u>In.</u>	<u>In.</u>			
YaA: Yattle-----	---	---	---	---	0	---	Moderate	High	Low
YaC: Yattle-----	---	---	---	---	0	---	Moderate	High	Low
ZR: Rizozo-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---
ZRF: Rizozo-----	Lithic bedrock	6-20	---	Indurated	0	---	Moderate	Low	Low
Rock outcrop-----	Lithic bedrock	0-0	---	Indurated	0	---	---	---	---

Table 24.--Water features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
AA:										
Ayon-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Apache-----	D	High	Jan-Dec	---	---	---	---	None	---	None
AC:										
Ayon-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Capulin-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
AcC:										
Acantilado-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
AED:										
Dams, earthen dam-----	---	High	Jan-Dec	---	---	---	---	None	---	---
AnB:										
Ascalon-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
Ap:										
Apache-----	D	High	Jan-Dec	---	---	---	---	None	---	None
AR:										
Calcidic Argiustolls-----	C	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
AsB: Ascalon, overblown-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
AV: Aguilar-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
Beckton-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
AvC: Aguilar-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
AW: Allens Park-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Wahatoya-----	C	High	Jan-Dec	---	---	---	---	None	---	None
BaA: Baca-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
BaB: Bacid-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
BaC: Baca, cool-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
BcA: Baca, cool-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Bk: Fallriver-----	A	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
BnA: Bacid-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
BT: Barela-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Raton-----	D	High	Jan-Dec	---	---	---	---	None	---	None
BwA: Bloom-----	C/D	Negligible	January	3.3-5.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			February	3.3-5.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			March	3.3-5.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			April	3.3-5.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			May	1.0-3.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			June	1.0-3.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			July	1.0-3.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			August	1.0-3.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			September	1.0-3.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			October	3.0-5.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			November	3.0-5.0	5.6-5.6	---	---	Rare	Very brief	Occasional
			December	3.3-5.0	5.6-5.6	---	---	Rare	Very brief	Occasional
Bx: Boxcanyon-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
CaD: Razor-----	D	High	Jan-Dec	---	---	---	---	None	---	None
CC: Chacuaco-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Capulin-----	B	Low	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
CD:										
Chacuaco-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Dalero-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Co:										
Collegiate-----	C	High	January	3.3-5.0	5.6-5.6	---	---	None	Brief	Occasional
			February	3.3-5.0	5.6-5.6	---	---	None	Brief	Occasional
			March	1.0-3.0	5.6-5.6	---	---	None	Brief	Occasional
			April	1.0-3.0	5.6-5.6	---	---	None	Brief	Occasional
			May	1.0-3.0	5.6-5.6	---	---	None	Brief	Occasional
			June	1.0-3.0	5.6-5.6	---	---	None	Brief	Occasional
			July	1.0-3.0	5.6-5.6	---	---	None	Brief	Occasional
			August	1.0-3.0	5.6-5.6	---	---	None	Brief	Occasional
			September	3.3-5.0	5.6-5.6	---	---	None	Brief	Occasional
			October	3.3-5.0	5.6-5.6	---	---	None	Brief	Occasional
			November	3.3-5.0	5.6-5.6	---	---	None	Brief	Occasional
			December	3.3-5.0	5.6-5.6	---	---	None	Brief	Occasional
CpA:										
Calemore-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
CpB:										
Calemore-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
CpC:										
Capulin-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
CpT:										
Capulin-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
Torreon-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
Ct: Breece-----	A	Low	Jan-Dec	---	---	---	---	None	---	None
CwC: Cumulic Cryaquolls-----	D	High	January	1.5-2.5	5.6-5.6	---	---	None	Brief	Occasional
			February	1.5-2.5	5.6-5.6	---	---	None	Brief	Occasional
			March	1.5-2.5	5.6-5.6	---	---	None	Brief	Occasional
			April	1.0-1.7	5.6-5.6	---	---	None	Brief	Occasional
			May	1.0-1.5	5.6-5.6	---	---	None	Brief	Occasional
			June	1.0-1.5	5.6-5.6	---	---	None	Brief	Occasional
			July	1.0-1.5	5.6-5.6	---	---	None	Brief	Occasional
			August	1.0-1.5	5.6-5.6	---	---	None	Brief	Occasional
			September	1.0-1.7	5.6-5.6	---	---	None	Brief	Occasional
			October	1.0-1.7	5.6-5.6	---	---	None	Brief	Occasional
			November	1.0-1.7	5.6-5.6	---	---	None	Brief	Occasional
			December	1.5-2.5	5.6-5.6	---	---	None	Brief	Occasional
DaE: Dalerose-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
De: Davtone-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
DFV: Fuera-----	C	Very high	Jan-Dec	---	---	---	---	None	---	None
Dargol-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Vamer-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None



Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
DH: Davtone-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
Histic Cryaquolls-----	A/D	High	January	1.7-4.0	5.6-5.6	---	---	None	---	None
			February	1.7-4.0	5.6-5.6	---	---	None	---	None
			March	1.7-4.0	5.6-5.6	---	---	None	---	None
			April	0.5-1.7	---	---	---	None	---	None
			May	0.5-1.7	5.6-5.6	---	---	None	---	None
			June	0.5-1.7	5.6-5.6	---	---	None	---	None
			July	0.5-1.5	5.6-5.6	---	---	None	---	None
			August	0.5-1.7	5.6-5.6	---	---	None	---	None
			September	0.5-1.7	5.6-5.6	---	---	None	---	None
			October	1.7-4.0	5.6-5.6	---	---	None	---	None
			November	1.7-4.0	5.6-5.6	---	---	None	---	None
			December	1.7-4.0	5.6-5.6	---	---	None	---	None
Dm: Demayo-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Ds: Des Moines-----	C	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
Dt: Davtone-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
Dv: Feterita-----	D	Negligible	January	---	---	0.5-2.0	Long	Occasional	---	None
			February	---	---	0.5-2.0	Long	Occasional	---	None
			March	---	---	0.5-2.0	Long	Occasional	---	None
			April	---	---	0.5-2.0	Long	Occasional	---	None
			May	---	---	0.5-2.0	Long	Occasional	---	None
			June	0.0-0.8	---	0.5-2.0	Long	Occasional	---	None
			July	0.0-0.8	---	0.5-2.0	Long	Occasional	---	None
			August	0.0-0.8	---	0.5-2.0	Long	Occasional	---	None
			September	---	---	0.5-2.0	Long	Occasional	---	None
			October	---	---	0.5-2.0	Long	Occasional	---	None
			November	---	---	0.5-2.0	Long	Occasional	---	None
			December	---	---	0.5-2.0	Long	Occasional	---	None
Ec: Eguaje-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Demayo-----	D	High	Jan-Dec	---	---	---	---	None	---	None
EL: Ellicott-----	A	Negligible	Jan-Dec	---	---	---	---	None	Very brief	Occasional

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
EL:										
Las Animas-----	A/D	Medium	January	3.3-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			February	3.3-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			March	3.3-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			April	3.0-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			May	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			June	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			July	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			August	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			September	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			October	3.0-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			November	3.0-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			December	3.3-5.0	5.6-5.6	---	---	None	Very brief	Occasional
ES:										
Embargo-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Schwacheim-----	D	High	Jan-Dec	---	---	---	---	None	---	None
FcB:										
Wapiti-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
FcC:										
Fort-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
FcD:										
Fort-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
Fp:										
Fishers-----	C	Very high	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
FtC: Olnest-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
FuD: Bandarito-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
FuE: Bandarito-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Bandarito-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Fishers-----	C	High	Jan-Dec	---	---	---	---	None	---	None
FyB: Furia-----	C/D	High	January	3.0-4.0	5.6-5.6	---	---	None	Brief	Occasional
			February	3.0-4.0	5.6-5.6	---	---	None	Brief	Occasional
			March	1.0-2.0	5.6-5.6	---	---	None	Brief	Occasional
			April	1.0-2.0	5.6-5.6	---	---	None	Brief	Occasional
			May	0.5-1.5	5.6-5.6	---	---	None	Brief	Occasional
			June	0.5-1.5	5.6-5.6	---	---	None	Brief	Occasional
			July	0.5-1.5	5.6-5.6	---	---	None	Brief	Occasional
			August	0.5-1.5	5.6-5.6	---	---	None	Brief	Occasional
			September	1.0-2.0	5.6-5.6	---	---	None	Brief	Occasional
			October	1.0-2.0	5.6-5.6	---	---	None	Brief	Occasional
			November	3.0-4.0	5.6-5.6	---	---	None	Brief	Occasional
			December	3.0-4.0	5.6-5.6	---	---	None	Brief	Occasional
GA: Gulnare-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Allens Park-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
GC: Groomer-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Cucharas-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
GgB: Glenberg-----	A	Low	Jan-Dec	---	---	---	---	None	Brief	Occasional
GmE: Aquic Dystrocryepts-----	C	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	---	---	---	---	None	---	None
			May	---	---	---	---	None	---	None
			June	2.0-3.0	---	---	---	None	---	None
			July	2.0-3.0	---	---	---	None	---	None
			August	2.0-3.0	---	---	---	None	---	None
			September	2.0-3.0	---	---	---	None	---	None
			October	---	---	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
Gn: Angostura-----	B	High	Jan-Dec	---	---	---	---	None	---	None
GP: Pits, gravel-----	A	Very low	Jan-Dec	---	---	---	---	None	---	None
GR: Gulnare-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
Hn: Hoehne-----	A	Very low	Jan-Dec	---	---	---	---	None	Very brief	Occasional
HvA: Haversid-----	B	Low	Jan-Dec	---	---	---	---	None	---	Rare
HyD: Humbar Springs-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
K2D: Kimera-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Chicosa-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
KI: Kandrix-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Chicosa-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Km: Kimera-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
KmC: Wilid-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Kimera-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
KO: Kimera-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Oterodry-----	A	Low	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
Kw:										
Kandrix-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
KwC:										
Kandrix-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
Wiley-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
La:										
Lanola-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Lb:										
La Brier-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Ld:										
Leadville-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
LG:										
Manzanst-----	C/D	High	Jan-Dec	---	---	---	---	None	---	None
Ritoazul-----	D	High	Jan-Dec	---	---	---	---	None	---	None
LH:										
Leadville-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Howlett-----	B	High	Jan-Dec	---	---	---	---	None	---	None
Lo:										
La Brier-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
LoA: Limon-----	C	Low	Jan-Dec	---	---	---	---	None	---	Rare
LR: Fallriver-----	A	Medium	Jan-Dec	---	---	---	---	None	---	None
Rubble land-----	A	Medium	Jan-Dec	---	---	---	---	None	---	---
LRT: Lorencito-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Rombo-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Sarcillo-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Ls: Las Animas-----	A/D	High	January	3.3-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			February	3.3-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			March	3.3-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			April	3.0-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			May	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			June	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			July	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			August	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			September	1.0-3.0	5.6-5.6	---	---	None	Very brief	Occasional
			October	3.0-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			November	3.0-5.0	5.6-5.6	---	---	None	Very brief	Occasional
			December	3.3-5.0	5.6-5.6	---	---	None	Very brief	Occasional
LST: Lorencito-----	D	High	Jan-Dec	---	---	---	---	None	---	None



Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
LST:										
Sarcillo-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Trujillo-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Lt:										
Littlepine-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
LvD:										
Lorencito-----	D	High	Jan-Dec	---	---	---	---	None	---	None
LW:										
Littlepine-----	B	High	Jan-Dec	---	---	---	---	None	---	None
Wahatoya-----	C	High	Jan-Dec	---	---	---	---	None	---	None
MaB:										
Mauricanyon, warm-----	B	Low	Jan-Dec	---	---	---	---	None	---	Rare
MaW:										
Mauricanyon, wet-----	C	Low	January	3.5-5.0	5.6-5.6	---	---	None	---	Rare
			February	3.5-4.3	5.6-5.6	---	---	None	---	Rare
			March	3.5-4.3	5.6-5.6	---	---	None	---	Rare
			April	3.5-4.3	5.6-5.6	---	---	None	---	Rare
			May	3.0-4.0	5.6-5.6	---	---	None	---	Rare
			June	2.5-3.5	5.6-5.6	---	---	None	---	Rare
			July	2.5-3.5	5.6-5.6	---	---	None	---	Rare
			August	2.5-3.5	5.6-5.6	---	---	None	---	Rare
			September	2.5-4.0	5.6-5.6	---	---	None	---	Rare
			October	3.0-4.0	5.6-5.6	---	---	None	---	Rare
			November	3.5-4.3	5.6-5.6	---	---	None	---	Rare
			December	3.5-4.3	5.6-5.6	---	---	None	---	Rare

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
MD: Dumps, mine-----	---	Low	Jan-Dec	---	---	---	---	None	---	None
Mf: Moran-----	A	Medium	Jan-Dec	---	---	---	---	None	---	None
MG: Tercio-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Graneros-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
MGR: Midway, moist-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Ritoazul-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
MI: Minqwet-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Wiley-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
MIK: Midway-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Chicosa-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
MnA: Manzanst-----	C/D	Low	Jan-Dec	---	---	---	---	None	---	None
MnB: Manzanst-----	C/D	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
MnW:										
Aquic Haplustalfs-----	A/D	Medium	January	---	---	---	---	None	---	None
			February	---	---	---	---	None	---	None
			March	---	---	---	---	None	---	None
			April	2.0-3.0	5.0-6.0	---	---	None	---	None
			May	2.0-3.0	5.0-6.0	---	---	None	---	None
			June	2.0-3.0	5.0-6.0	---	---	None	---	None
			July	2.0-3.0	5.0-6.0	---	---	None	---	None
			August	2.0-3.0	5.0-6.0	---	---	None	---	None
			September	2.0-3.0	5.0-6.0	---	---	None	---	None
			October	2.0-3.0	5.0-6.0	---	---	None	---	None
			November	---	---	---	---	None	---	None
			December	---	---	---	---	None	---	None
MoA:										
Mauricanyon-----	B	Low	Jan-Dec	---	---	---	---	None	---	Rare
MoB:										
Mauricanyon, dry-----	B	Low	Jan-Dec	---	---	---	---	None	---	Rare
MoR:										
Mion-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
MP:										
Midway-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Razor-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
MR: Mirror-----	B	High	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
MvC: Manvel-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
MyD: Midway-----	D	High	Jan-Dec	---	---	---	---	None	---	None
MzA: Manzanola-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
MzB: Manzanola-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
NM: Nopurg-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Mitotes-----	C	High	Jan-Dec	---	---	---	---	None	---	None
OeC: Otero-----	A	Very low	Jan-Dec	---	---	---	---	None	---	None
OtD: Oterodry-----	A	Low	Jan-Dec	---	---	---	---	None	---	None
OyB: Olnest-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
OyC: Olnest-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
PeD: Penrose-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
PeF: Penrose-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
Midway-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
PM: Penrose-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
Minnequa-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
PnD: Penrose, moist-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
RaB: Ravine-----	D	Low	Jan-Dec	---	---	---	---	None	---	None
RaC: Ritoazul-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
RB: Raton-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Barela-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
Rc: Raku-----	C	Low	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
RcA: Raku-----	C	Very low	Jan-Dec	---	---	---	---	None	---	None
Rd: Romound-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
RF: Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
Rubble land-----	A	Medium	Jan-Dec	---	---	---	---	None	---	---
Rt: Raton-----	D	High	Jan-Dec	---	---	---	---	None	---	None
RyC: Ryegate-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
RzD: Rizozo, moist-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
Sc: Schwacheim-----	D	High	Jan-Dec	---	---	---	---	None	---	None
ScR: Schwacheim-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
SG: Ovmesa-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
SG: Romound-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None
ShD: Shingle-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Penrose-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
SL: Scandard-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Leadville-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
SM: Schamber-----	A	Low	Jan-Dec	---	---	---	---	None	---	None
Midway-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Sn: Sitcan-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
SR: Saruche-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Rombo-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
Sw: Molinaro-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
TbA: Trementina, warm-----	B	Low	Jan-Dec	---	---	---	---	None	---	Rare
TeE: Tecolote-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
TF: Torreon, stony-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Fuera-----	C	Very high	Jan-Dec	---	---	---	---	None	---	None
TgD: Trujillo-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
TgE: Trujillo-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
TL: Torreon, stony-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Lorencito-----	D	High	Jan-Dec	---	---	---	---	None	---	None
TmD: Trujillo-----	B	Medium	Jan-Dec	---	---	---	---	None	---	None
TnA: Trementina, cool-----	C	Low	Jan-Dec	---	---	---	---	None	---	Rare
TnB: Trementina, dry-----	B	Low	Jan-Dec	---	---	---	---	None	---	Rare
To: Torreon-----	C	Medium	Jan-Dec	---	---	---	---	None	---	None



Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
ToD: Torreon-----	C	High	Jan-Dec	---	---	---	---	None	---	None
ToE: Torreon-----	C	High	Jan-Dec	---	---	---	---	None	---	None
Torreon, stony-----	C	High	Jan-Dec	---	---	---	---	None	---	None
TsD: Travessilla-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
TsE: Torreon-----	C	High	Jan-Dec	---	---	---	---	None	---	None
TsF: Travessilla-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---
Us: Aridic Calciustolls-----	B	High	Jan-Dec	---	---	---	---	None	---	None
VB: Vona, overblown-----	A	Very low	Jan-Dec	---	---	---	---	None	---	None
VD: Dargol-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Stout-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
VD: Vamer-----	D	High	Jan-Dec	---	---	---	---	None	---	None
VnC: Vona-----	A	Low	Jan-Dec	---	---	---	---	None	---	None
VoB: Vona-----	A	Very low	Jan-Dec	---	---	---	---	None	---	None
VoC: Vonid-----	A	Low	Jan-Dec	---	---	---	---	None	---	None
VT: Villedry-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Travessilla-----	D	Medium	Jan-Dec	---	---	---	---	None	---	None
VtC: Valent-----	A	Low	Jan-Dec	---	---	---	---	None	---	None
W: Water-----	---	---	Jan-Dec	---	---	---	---	None	---	---
Wa: Wapiti-----	B	Low	Jan-Dec	---	---	---	---	None	---	None
WC: Plughat-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Villegreen-----	C	Low	Jan-Dec	---	---	---	---	None	---	None

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
WeB: Wiley-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
WM: Minnequa-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Wilid-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
WrB: Wilid-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
WV: Almagre-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
Villedry-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
WyB: Wilid-----	C	Low	Jan-Dec	---	---	---	---	None	---	None
YaA: Yattle-----	A	Very low	Jan-Dec	---	---	---	---	None	---	None
YaC: Yattle-----	A	Very low	Jan-Dec	---	---	---	---	None	---	None
ZR: Rizozo-----	D	High	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---

Table 24.--Water features--continued

Map symbol and soil name	Hydro- logic group	Surface runoff	Month	Water table		Ponding			Flooding	
				Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
ZRF:				<u>Ft.</u>	<u>Ft.</u>	<u>Ft.</u>				
Rizozo-----	D	Very high	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----	---	Very high	Jan-Dec	---	---	---	---	None	---	---

Table 25.--Taxonomic classification of the soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Acantilado-----	Fine-silty, mixed, superactive, mesic Calcic Haplustals
Aguilar-----	Fine, smectitic, mesic Vertic Natrargids
Allens Park-----	Fine-loamy, mixed, superactive, frigid Typic Haplustals
Almagre-----	Fine-silty, mixed, active, mesic Ustic Haplargids
Angostura-----	Loamy-skeletal, mixed, superactive Typic Glossocryals
Apache-----	Loamy, mixed, superactive, mesic Lithic Haplustolls
Aquic Dystricrypts-----	Aquic Dystricrypts
Aquic Haplustals-----	Fine, smectitic, mesic Aquic Haplustals
Aridic Calciustolls-----	Fine-loamy, mixed, superactive, mesic Aridic Calciustolls
Ascalon-----	Fine-loamy, mixed, superactive, mesic Aridic Argiustolls
Ayon-----	Loamy-skeletal, mixed, superactive, mesic Aridic Calciustolls
Baca-----	Fine, smectitic, mesic Aridic Haplustals
Bacid-----	Fine, smectitic, mesic Ustic Haplargids
Bandarito-----	Fine, mixed, superactive, frigid Pachic Argiustolls
Barela-----	Fine, smectitic, frigid Typic Argiustolls
Beckton-----	Fine, smectitic, mesic Aridic Natrustolls
Bloom-----	Fine-silty, mixed, superactive, calcareous, mesic Aeric Fluvaquents
Boxcanyon-----	Fine, smectitic, mesic Calcic Haplustals
Breece-----	Coarse-loamy, mixed, superactive, frigid Pachic Haplustolls
Calcic Argiustolls-----	Clayey-skeletal, smectitic, mesic Calcic Argiustolls
Calemore-----	Fine-silty, mixed, superactive, mesic Aridic Argiustolls
Capulin-----	Fine-loamy, mixed, superactive, mesic Aridic Argiustolls
Chacuaco-----	Fine-loamy, mixed, superactive, mesic Calcic Argiustolls
Chicosa-----	Loamy-skeletal, mixed, superactive, mesic Aridic Calciustepts
Collegiate-----	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Cumulic Endoaquolls
Cucharas-----	Fine, smectitic Vertic Argicryolls
Cumulic Cryaquolls-----	Fine, smectitic Cumulic Cryaquolls
Dalerose-----	Loamy, mixed, superactive, mesic Lithic Haplustolls
Dams-----	Arents
Dargol-----	Fine, mixed, superactive, frigid Typic Haplustals
Davtone-----	Fine-loamy, mixed, superactive Pachic Argicryolls

Table 25.--Taxonomic classification of the soils--continued

Soil name	Family or higher taxonomic class
Demayo-----	Loamy-skeletal, mixed, superactive, mesic Lithic Haplustolls
Des Moines-----	Clayey-skeletal, smectitic, frigid Pachic Argiustolls
Eguaje-----	Clayey-skeletal, smectitic, mesic Calcic Argiustolls
Ellicott-----	Sandy, mixed, mesic Ustic Torrifluvents
Embargo-----	Clayey-skeletal, smectitic Ustic Argicryolls
Fallriver-----	Loamy-skeletal, isotic Typic Dystrocrepts
Feterita-----	Fine, smectitic, mesic Aridic Epiaquerts
Fishers-----	Clayey-skeletal, smectitic, frigid Typic Haplustalfs
Fort-----	Fine-loamy, mixed, superactive, mesic Ustic Haplargids
Fuera-----	Fine, mixed, superactive, frigid Lamellic Haplustalfs
Furia-----	Fine, mixed, superactive, frigid Cumulic Endoaquolls
Glenberg-----	Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Graneros-----	Fine, smectitic Ustic Glossocryalfs
Groomer-----	Fine, smectitic Typic Argicryolls
Gulnare-----	Loamy, mixed, superactive, frigid Lithic Haplustalfs
Haversid-----	Fine-loamy, mixed, superactive, calcareous, mesic Ustic Torrifluvents
Histic Cryaquolls-----	Loamy-skeletal, mixed Histic Cryaquolls
Hoehne-----	Coarse-loamy, mixed, superactive, nonacid, mesic Ustic Torrifluvents
Howlett-----	Fine-loamy, mixed, superactive Ustic Haplocryalfs
Humbar Springs-----	Coarse-loamy, mixed, superactive, mesic Aridic Calciustolls
Kandrix-----	Fine-loamy, mixed, superactive, mesic Aridic Calciustepts
Kimera-----	Fine-loamy, mixed, superactive, mesic Ustic Haplocalcids
La Brier-----	Fine, mixed, superactive, mesic Torrtic Argiustolls
Lanola-----	Loamy, carbonatic, mesic Lithic Haplustolls
Las Animas-----	Coarse-loamy, mixed, superactive, calcareous, mesic Typic Fluvaquents
Leadville-----	Loamy-skeletal, mixed, superactive Ustic Glossocryalfs
Limon-----	Fine, smectitic, calcareous, mesic Ustertic Torriorthents
Littlepine-----	Fine-loamy, mixed, superactive, frigid Typic Haplustalfs
Lorencito-----	Clayey, mixed, superactive, nonacid, mesic, shallow Aridic Ustorthents
Manvel-----	Fine-silty, mixed, superactive, calcareous, mesic Ustic Torriorthents
Manzanola-----	Fine, smectitic, mesic Ustic Haplargids
Manzanst-----	Fine, smectitic, mesic Aridic Haplustalfs
Mauricanyon-----	Fine-loamy, mixed, superactive, mesic Cumulic Haplustolls
Midway-----	Clayey, smectitic, calcareous, mesic, shallow Ustic Torriorthents
Minnequa-----	Fine-silty, mixed, superactive, calcareous, mesic Ustic Torriorthents

Table 25.--Taxonomic classification of the soils--continued

Soil name	Family or higher taxonomic class
Minqwet-----	Fine-silty, mixed, superactive, mesic Aridic Haplustepts
Mion-----	Clayey, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Mirror-----	Loamy-skeletal, isotic Typic Humicryepts
Mitotes-----	Fine, mixed, superactive Ustic Glossocryalfs
Molinaro-----	Fine-loamy, mixed, superactive, frigid Pachic Haplustolls
Moran-----	Loamy-skeletal, mixed, superactive Humic Dystrocryepts
Nopurg-----	Clayey-skeletal, mixed, superactive Ustic Glossocryalfs
Olneest-----	Fine-loamy, mixed, superactive, mesic Aridic Haplustalfs
Otero-----	Coarse-loamy, mixed, superactive, calcareous, mesic Aridic Ustorthents
Oterodry-----	Coarse-loamy, mixed, superactive, calcareous, mesic Ustic Torriorthents
Ovmesa-----	Loamy, gypsic, mesic, shallow Ustic Haplogypsid
Penrose-----	Loamy, carbonatic, mesic Lithic Ustic Torriorthents
Plughat-----	Fine-silty, mixed, superactive, mesic Calcic Haplustalfs
Raku-----	Fine, smectitic, mesic Aridic Argiustolls
Raton-----	Clayey-skeletal, smectitic, frigid Lithic Argiustolls
Ravine-----	Fine, smectitic, mesic Ustic Calciargids
Razor-----	Fine, smectitic, mesic Ustertic Haplocambids
Ritoazul-----	Fine, smectitic, mesic Aridic Haplusterts
Rizozo-----	Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents
Rombo-----	Fine, mixed, superactive, frigid Typic Haplustepts
Romound-----	Fine-loamy, mixed, superactive, mesic Ustic Haplogypsid
Ryegate-----	Fine-loamy, mixed, superactive, mesic Calcic Argiustolls
Sarcillo-----	Clayey, smectitic, mesic Lithic Haplustalfs
Saruche-----	Clayey, mixed, superactive, frigid, shallow Typic Haplustepts
Scandard-----	Loamy-skeletal, mixed, superactive Ustollic Haplocryalfs
Schamber-----	Sandy-skeletal, mixed, mesic Ustic Torriorthents
Schwacheim-----	Loamy-skeletal, mixed, superactive Lithic Haplocryolls
Shingle-----	Loamy, mixed, superactive, calcareous, mesic, shallow Ustic Torriorthents
Sitcan-----	Fine-loamy, mixed, superactive, mesic Aridic Argiustolls
Stout-----	Loamy, mixed, superactive, frigid Lithic Haplustepts
Tecolote-----	Loamy-skeletal, mixed, superactive, frigid Typic Haplustalfs
Tercio-----	Fine, smectitic Ustic Glossocryalfs
Torreon-----	Fine, smectitic, mesic Calcic Argiustolls
Travessilla-----	Loamy, mixed, superactive, calcareous, mesic Lithic Ustic Torriorthents
Trementina-----	Fine-silty, mixed, superactive, mesic Cumulic Haplustolls

Table 25.--Taxonomic classification of the soils--continued

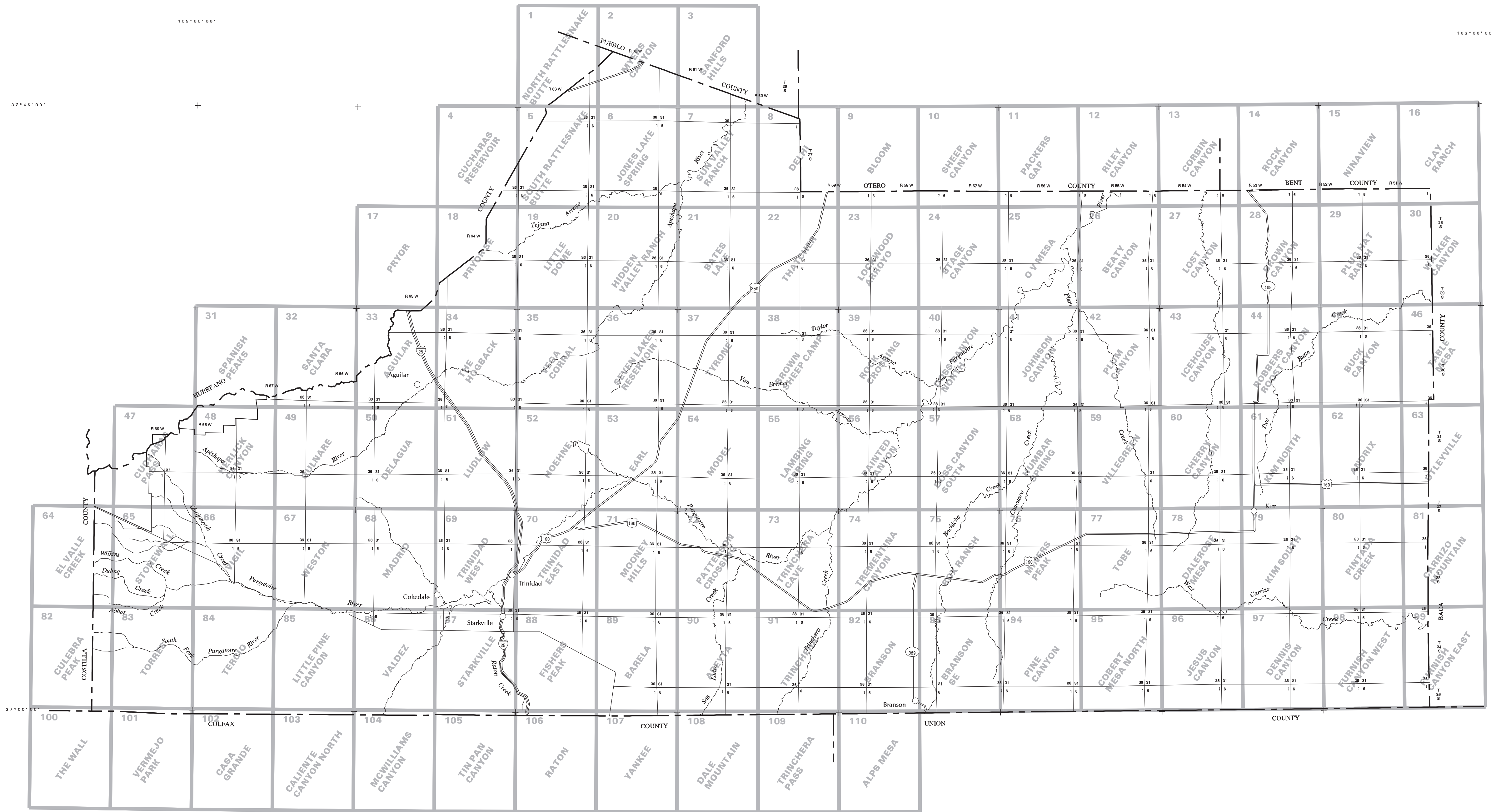
Soil name	Family or higher taxonomic class
Trujillo-----	Fine-loamy, mixed, superactive, frigid Typic Argiustolls
Valent-----	Mixed, mesic Ustic Torripsamments
Vamer-----	Clayey, mixed, superactive, frigid Lithic Haplustalfs
Villedry-----	Fine-silty, mixed, active, mesic Ustic Calciargids
Villegreen-----	Fine-silty, mixed, superactive, mesic Calcic Haplustalfs
Vona-----	Coarse-loamy, mixed, superactive, mesic Aridic Haplustalfs
Vonid-----	Coarse-loamy, mixed, superactive, mesic Ustic Calciargids
Wahatoya-----	Loamy-skeletal, mixed, superactive, frigid Typic Haplustalfs
Wapiti-----	Fine-loamy, mixed, superactive, mesic Calcic Argiustolls
Wiley-----	Fine-silty, mixed, superactive, mesic Aridic Haplustalfs
Willid-----	Fine-silty, mixed, superactive, mesic Ustic Haplargids
Yattle-----	Coarse-loamy, mixed, superactive, mesic Ustic Haplocalcids



# **NRCS Accessibility Statement**

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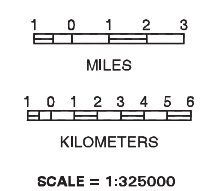
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SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

INDEX TO MAP SHEETS  
LAS ANIMAS COUNTY AREA, COLORADO  
PARTS OF HUERFANO AND LAS ANIMAS COUNTIES



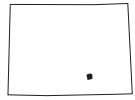




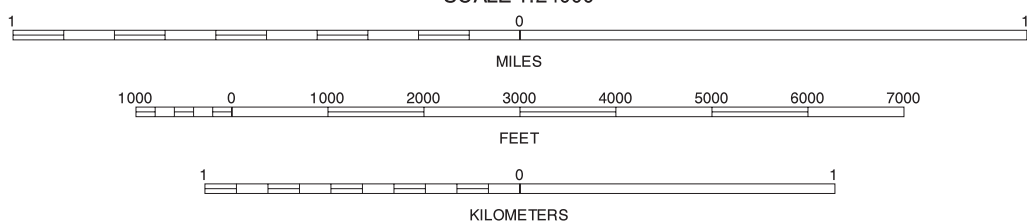
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



		2
4	5	6

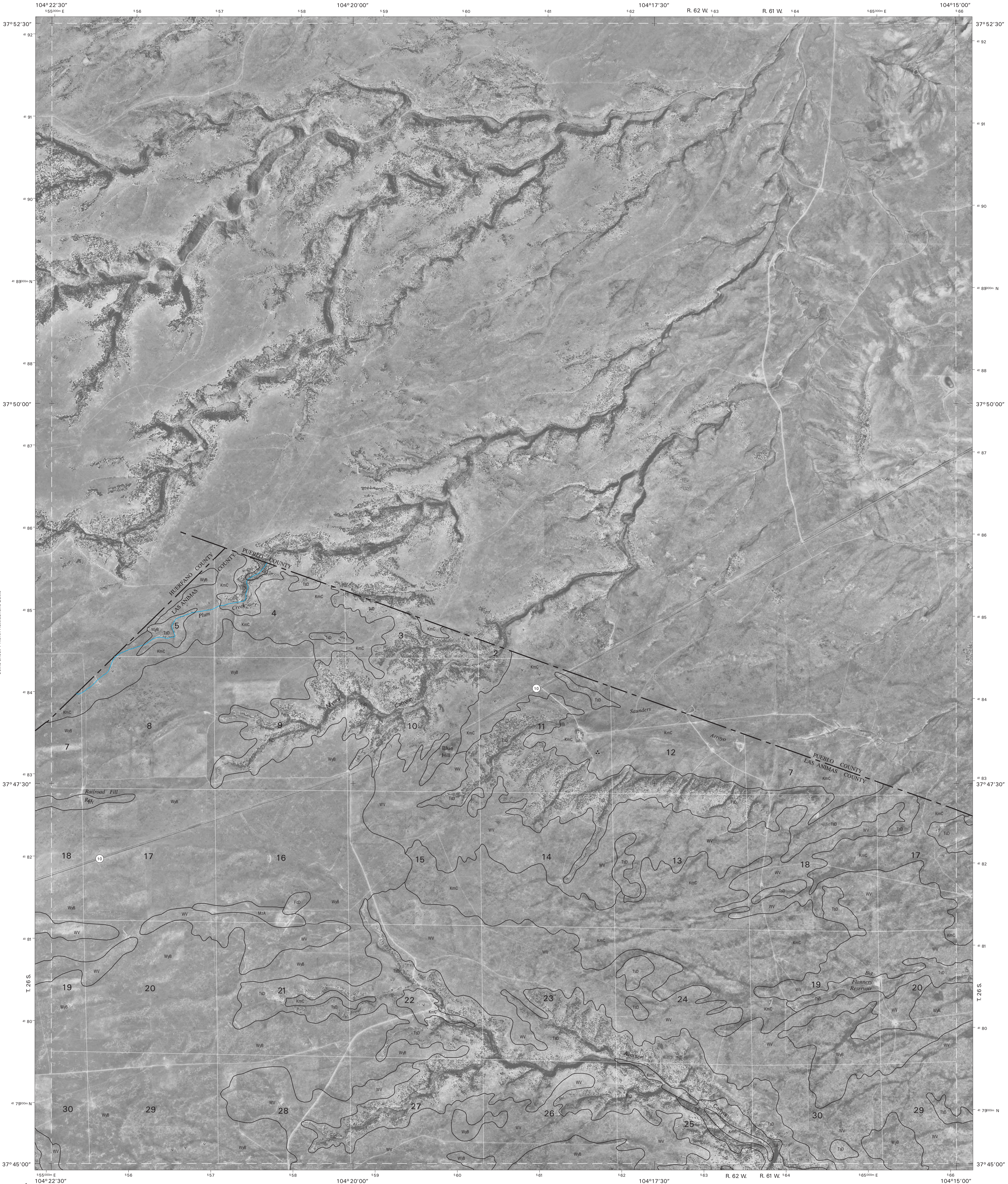
INDEX TO ADJOINING 7.5 MAPS

- 2 MYERS CANYON
- 4 CUCHARAS RESERVOIR
- 5 SOUTH RATTLESNAKE BUTTE
- 6 JONES LAKE SPRING

NORTH RATTLESNAKE BUTTE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 1 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.

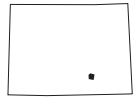




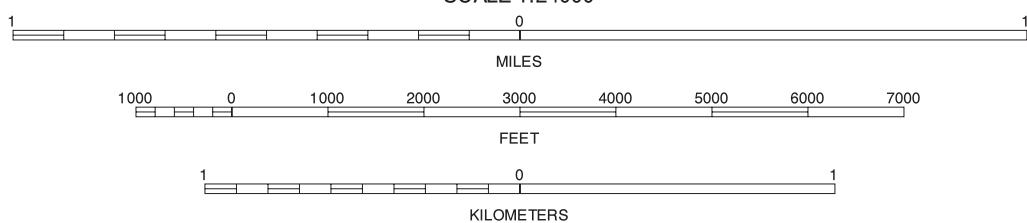
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



1	2	3
5	6	7

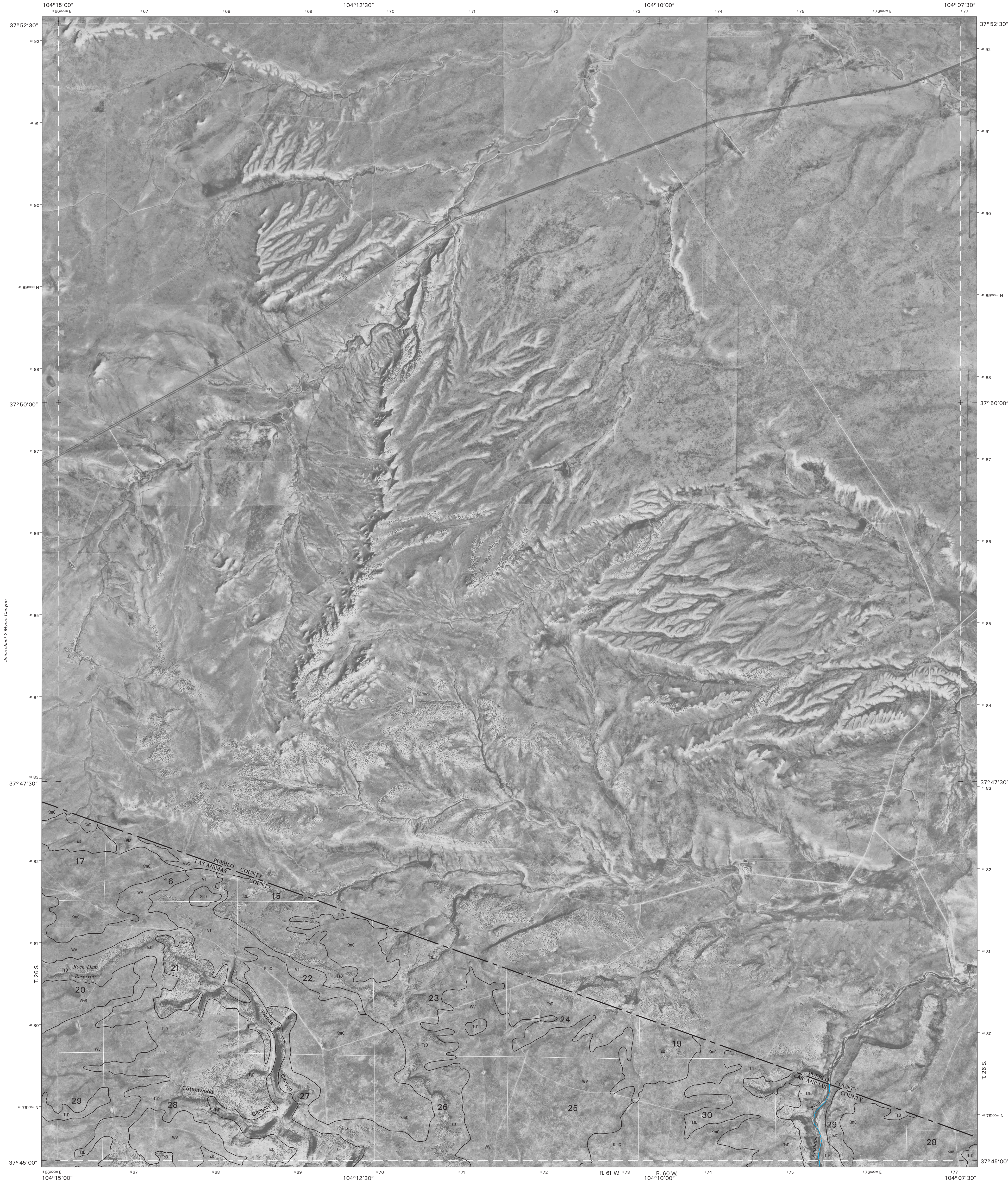
INDEX TO ADJOINING 7.5 MAPS

- 1 NORTH RATTLESNAKE BUTTE
- 2 SANFORD HILLS
- 3 SOUTH RATTLESNAKE BUTTE
- 4 JONES LAKE SPRING
- 5 SUN VALLEY RANCH

MYERS CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 2 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





Joins sheet 6  
Jones Lake Spring

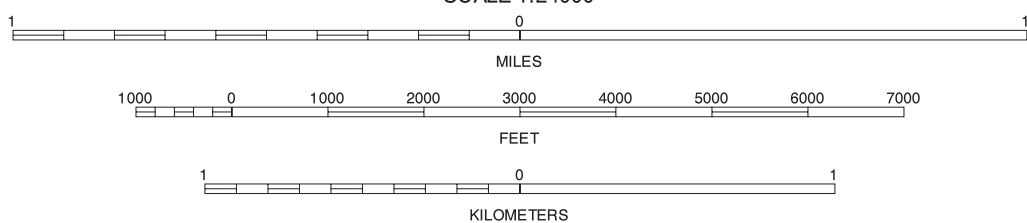
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1989 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



2		
6	7	8

INDEX TO ADJOINING 7.5 MAPS

2 MYERS CANYON  
6 JONES LAKE SPRING  
7 SUN VALLEY RANCH  
8 DELHI

SANFORD HILLS, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 3 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.

Joins sheet 8  
Delhi



LAS ANIMAS COUNTY AREA, COLORADO  
CUCHARAS RESERVOIR QUADRANGLE  
SHEET NUMBER 4 OF 110

Continued on sheet 1  
with Rattlesnake Butte



Joins sheet 5 South Rattlesnake Butte

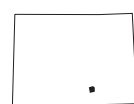
Joins sheet 17  
prior

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1989 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

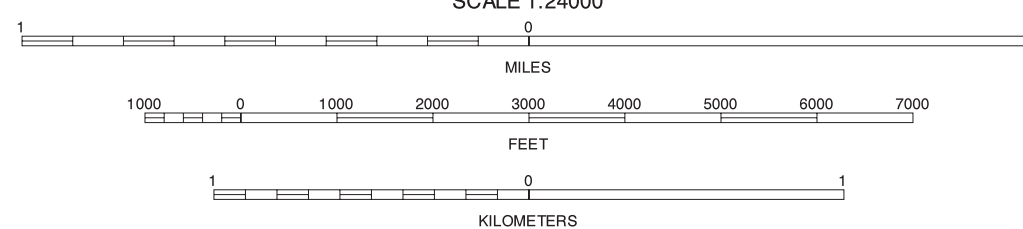
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1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are  
approximately positioned. Digital data are available for  
this quadrangle.

Joins sheet 18 Pryor SE

SCALE 1:24000



QUADRANGLE LOCATION



		1
		5
17	18	19

INDEX TO ADJOINING 7.5 MAPS

CUCHARAS RESERVOIR, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 4 OF 110

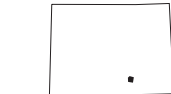
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



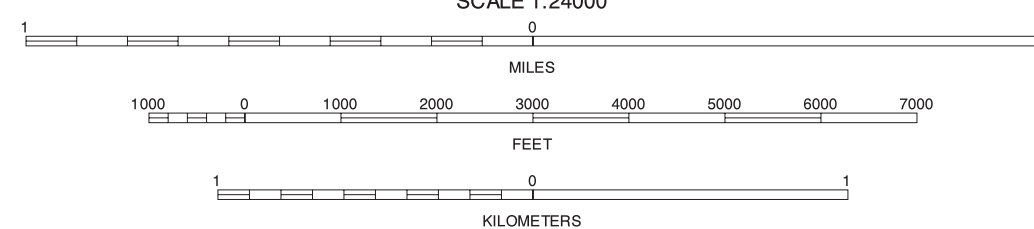


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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



1	2	3
4	5	6
7	8	9
10	11	12

INDEX TO ADJOINING 7.5 MINUTE MAPS

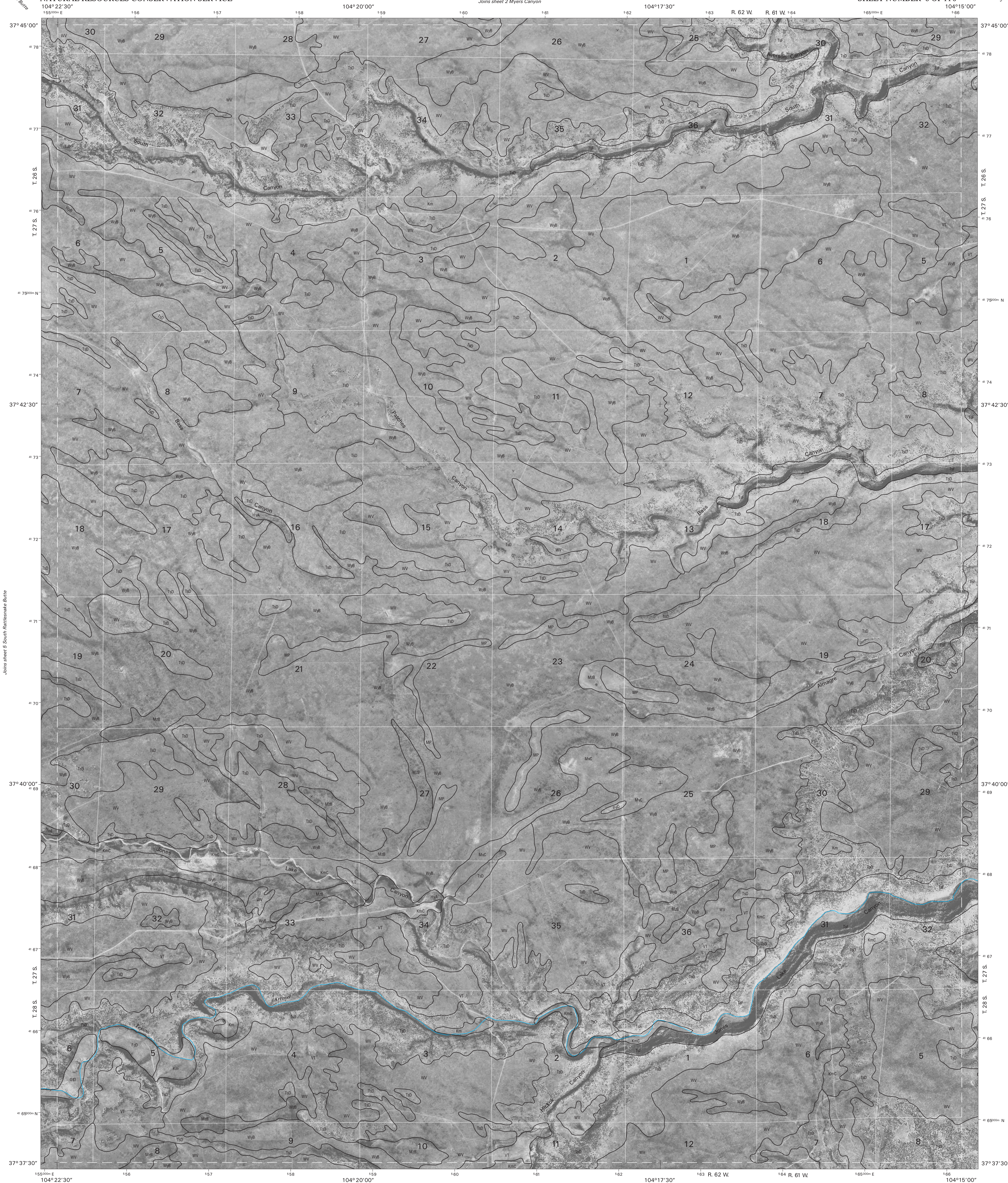
SOUTH RATTLESNAKE BUTTE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 5 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



Joins sheet 2 Myers Canyon

Joins sheet 3  
Sanford Hills



Joins sheet 5 South Rattlesnake Butte

Joins sheet 7 Sun Valley Ranch

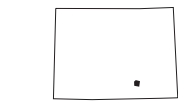
Joins sheet 19  
Little Dome

Joins sheet 21  
Bates Lake

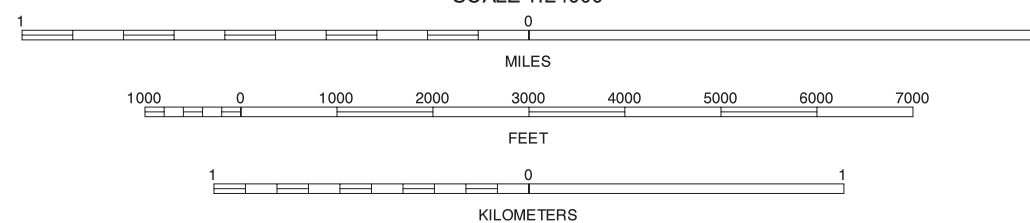
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



Joins sheet 20 Hidden Valley Ranch

1	2	3
5		7
19	20	21

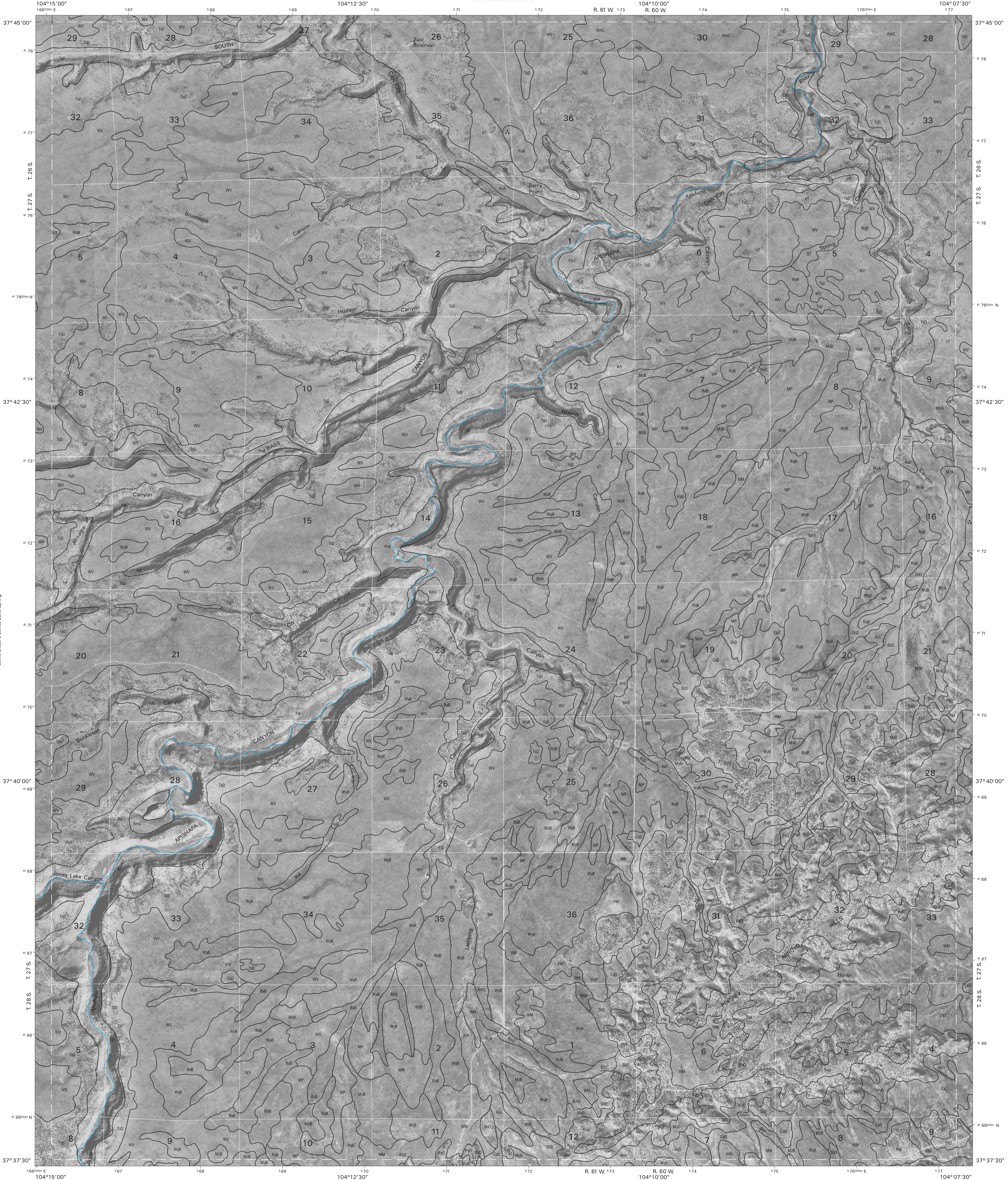
INDEX TO ADJOINING 7.5 MAPS

- 1 NORTH RATTLESNAKE BUTTE
- 2 MYERS CANYON
- 3 SANFORD HILLS
- 5 SOUTH RATTLESNAKE BUTTE
- 7 SUN VALLEY RANCH
- 19 LITTLE DOME
- 20 HIDDEN VALLEY RANCH
- 21 BATES LAKE

JONES LAKE SPRING, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 6 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



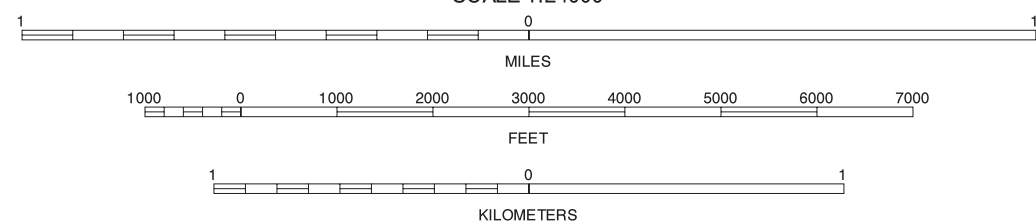


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1989 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



2	3	
6		8
20	21	22

INDEX TO ADJOINING 7.5 MAPS

SUN VALLEY RANCH, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 7 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



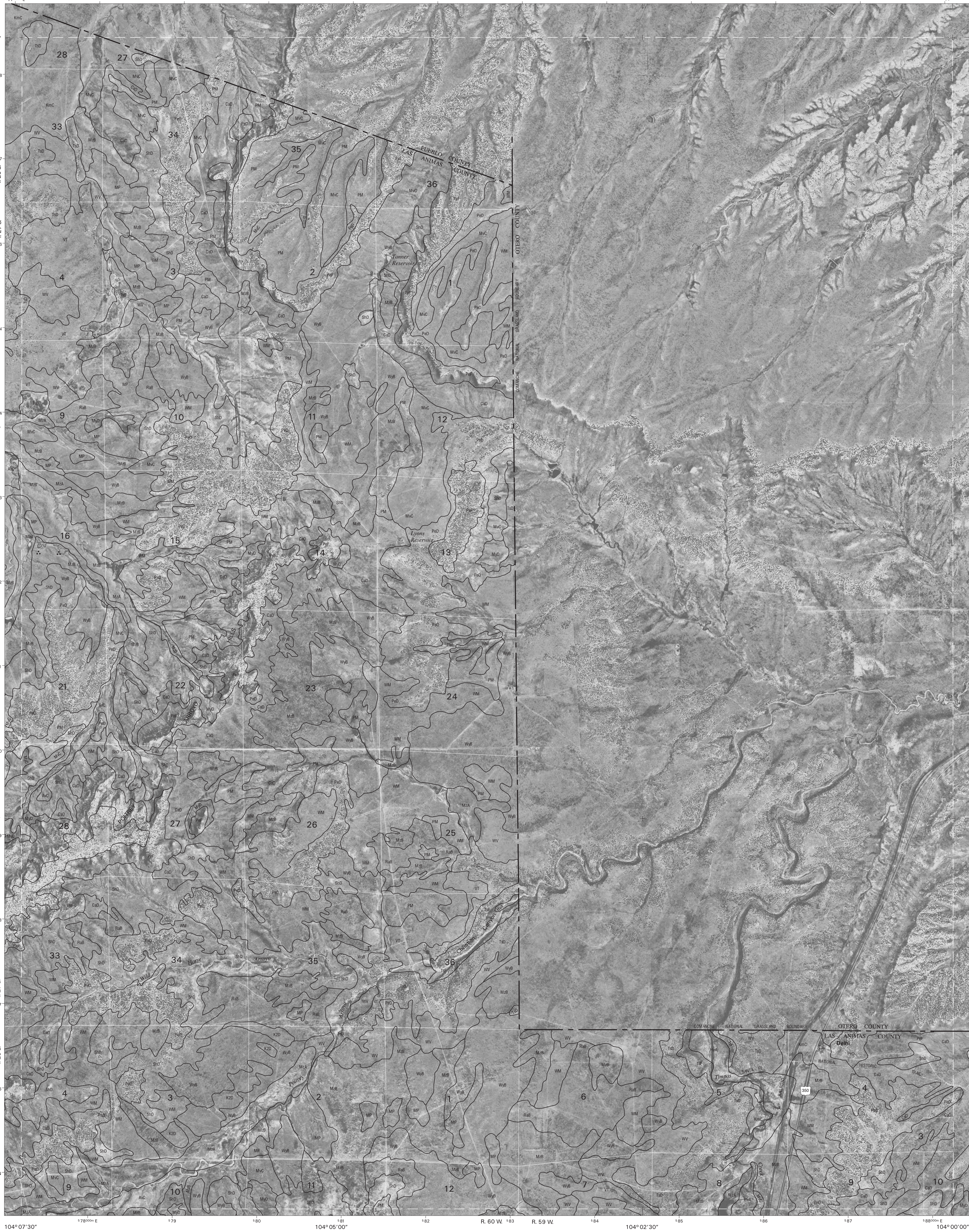
Joins sheet 2  
Sawatch Hills

Joins sheet 7  
Sun Valley Ranch

Joins sheet 21  
Bates Lake

Joins sheet 9  
Bloom

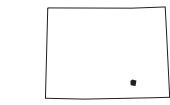
Joins sheet 23  
Lockwood Arroyo



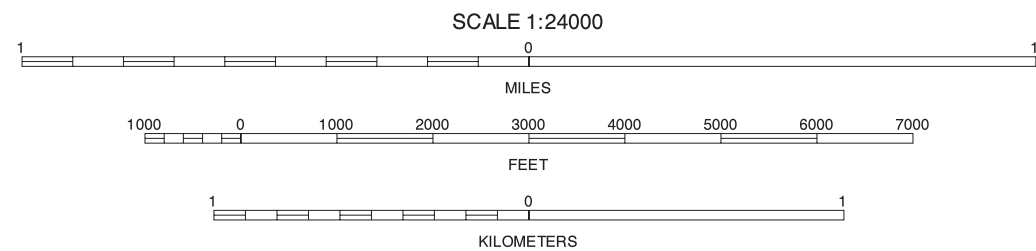
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey from 1985 - 1993 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

↑  
NORTH



QUADRANGLE LOCATION



3			3	SANFORD HILLS
7		9	7	SUN VALLEY RANCH
			9	BLOOM
			21	BATES LAKE
21	22	23	22	THATCHER
			23	LOCKWOOD ARROYO

INDEX TO ADJOINING 7.5 MAPS

DELHI, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 8 OF 110

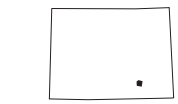
Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



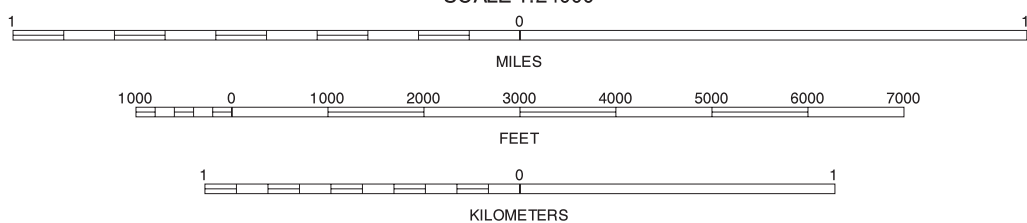


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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



Joins sheet 23 Lockwood Arroyo

8		10
22	23	24

INDEX TO ADJOINING 7.5 MAPS

- 8 DELHI
- 10 SHEEP CANYON
- 22 THATCHER
- 23 LOCKWOOD ARROYO
- 24 STAGE CANYON

BLOOM, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 9 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 8 Delhi

Joins sheet 22 Thatcher

Joins sheet 10 Sheep Canyon

Joins sheet 24 Stage Canyon





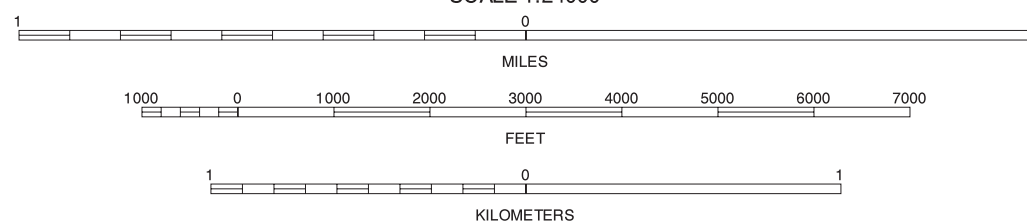
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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



9	11
23	25

INDEX TO ADJOINING 7.5 MAPS

SHEEP CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 10 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.

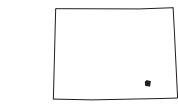




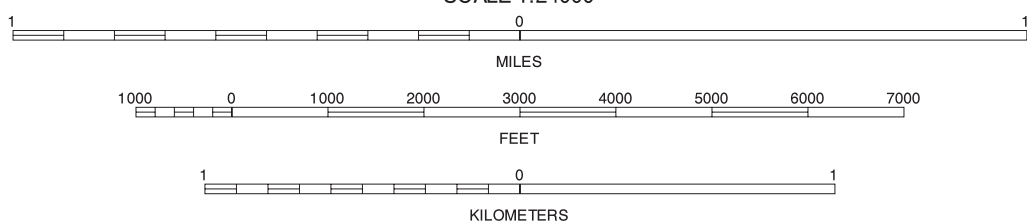
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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



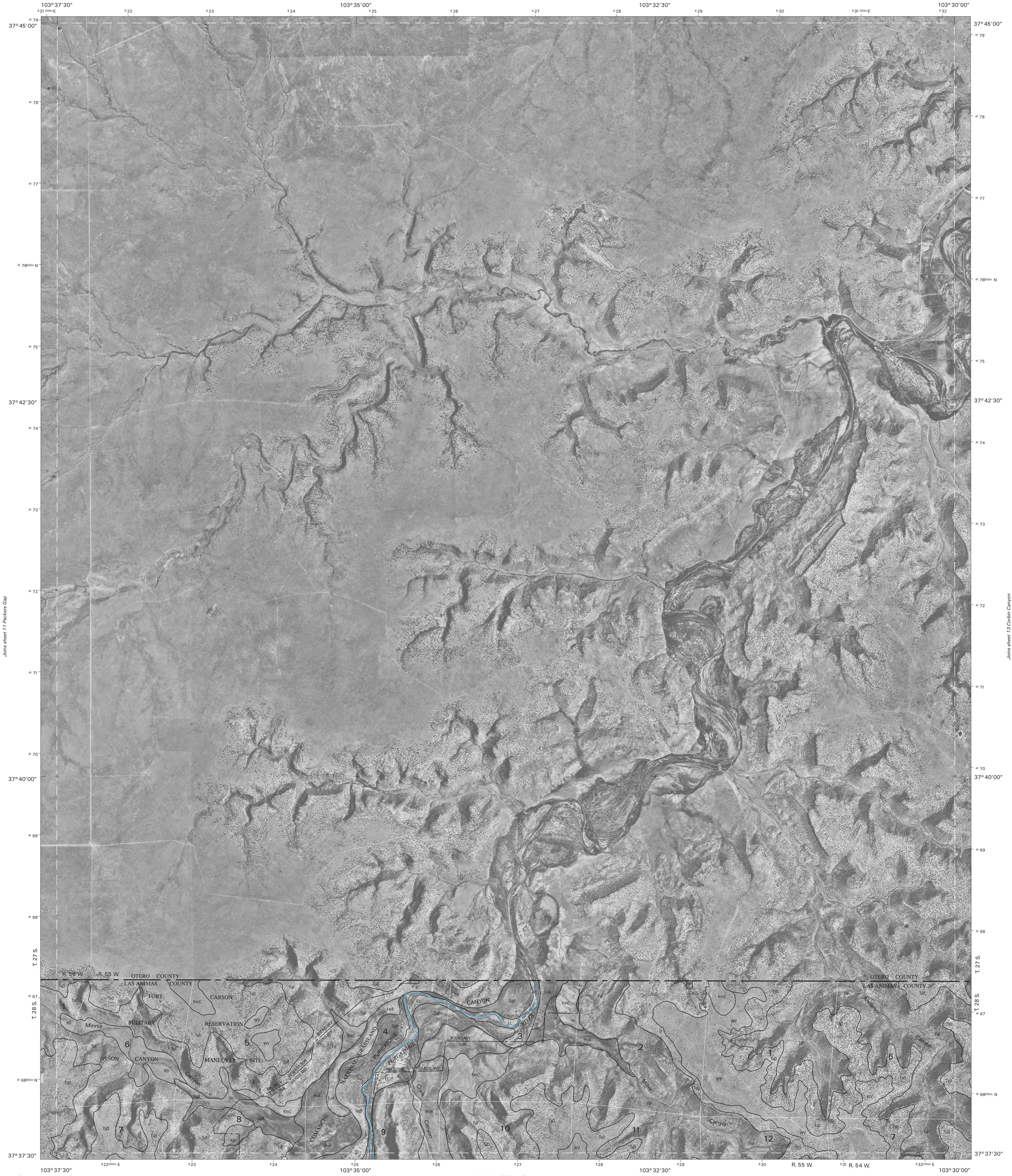
10	12
24	26

INDEX TO ADJOINING 7.5 MINUTE MAPS

PACKERS GAP, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 11 OF 110

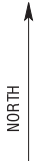
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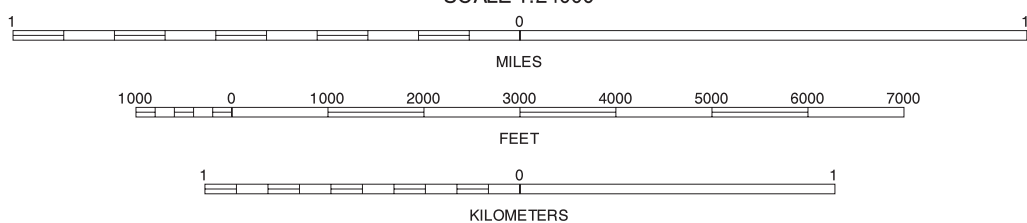


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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



11	13
25	27

INDEX TO ADJOINING 7.5 MINUTE MAPS

RILEY CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 12 OF 110

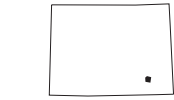
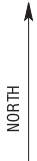
Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



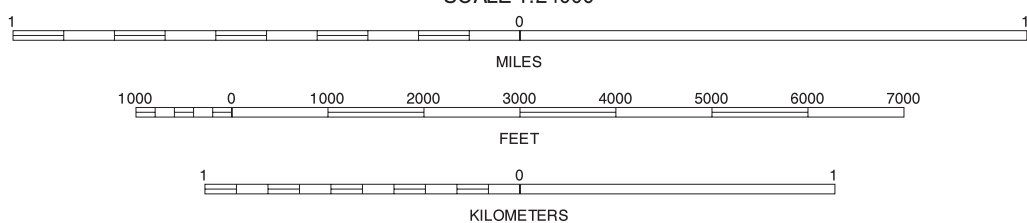


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North American Datum of 1983(NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



12		14
26	27	28

INDEX TO ADJOINING 7.5 MAPS

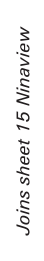
12 RILEY CANYON  
14 ROCK CANYON  
26 BEATY CANYON  
27 LOST CANYON  
28 BROWN CANYON

CORBIN CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 13 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatlne are for reference only and are included on adjacent map sheets.



LAS ANIMAS COUNTY AREA, COLORADO  
ROCK CANYON QUADRANGLE  
SHEET NUMBER 14 OF 110



North American Datum of 1983(NAD83). GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are  
approximately positioned. Digital data are available for  
this quadrangle.

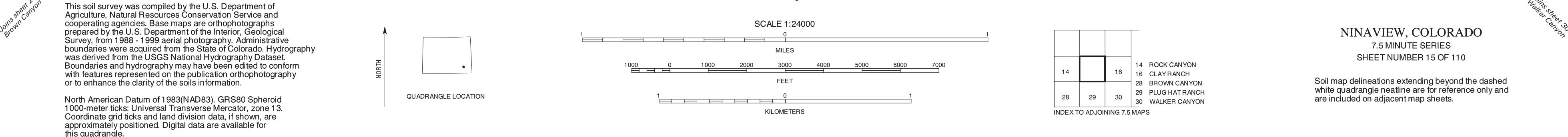
INDEX TO ADJOINING 7.5 MAPS

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

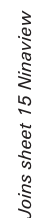


LAS ANIMAS COUNTY AREA, COLORADO  
NINAVIEW QUADRANGLE  
SHEET NUMBER 15 OF 110





LAS ANIMAS COUNTY AREA, COLORADO  
CLAY RANCH QUADRANGLE  
SHEET NUMBER 16 OF 110

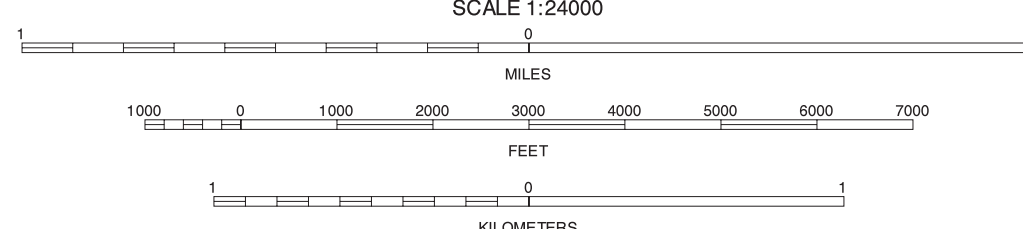


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Basic data and orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988-1989 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83). GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are  
approximately positioned. Digital data are available for  
this quadrangle.



QUADRANGLE LOCATION



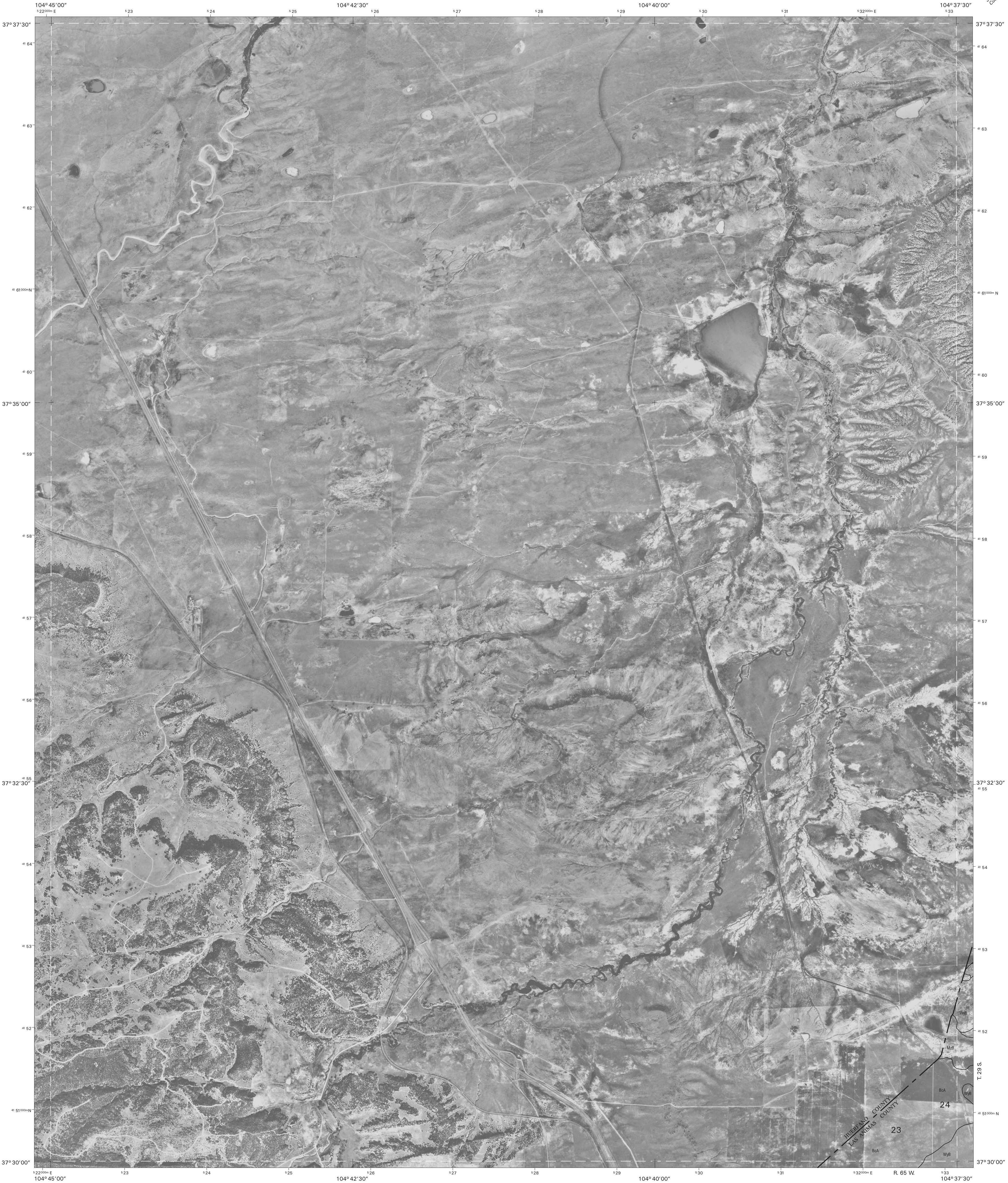
15			15 NINAVIEW
29	30		29 PLUG HAT RANCH 30 WALKER CANYON

INDEX TO ADJOINING 7.5 MAPS

CLAY RANCH, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 16 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

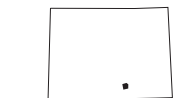




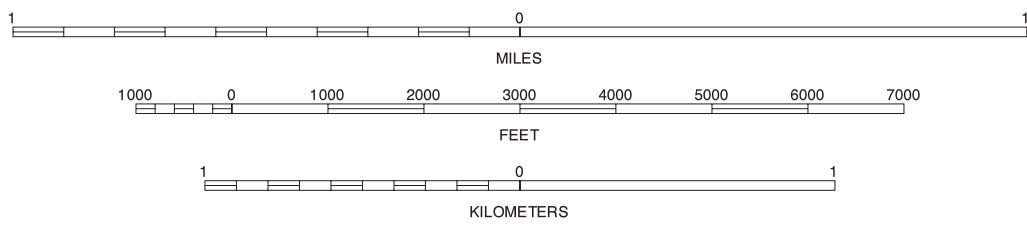
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 2005 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



		4
	18	
32	33	34

INDEX TO ADJOINING 7.5 MAPS

4 CUCHARAS RESERVOIR  
18 PRYOR SE  
32 SANTA CLARA  
33 AGUILAR  
34 THE HOGBACK

PRYOR, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 17 OF 110

Soil map delineations extending beyond the dashed white quadrangle nealtine are for reference only and are included on adjacent map sheets.

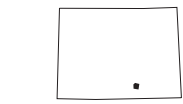




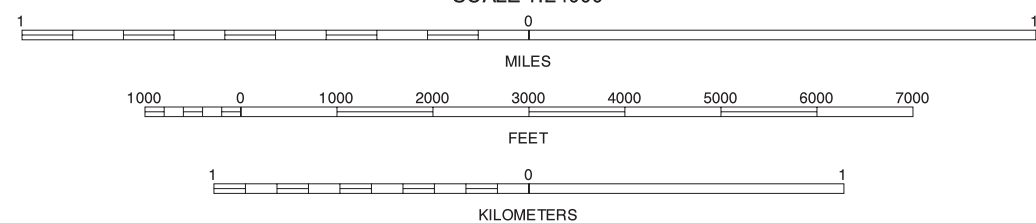
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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



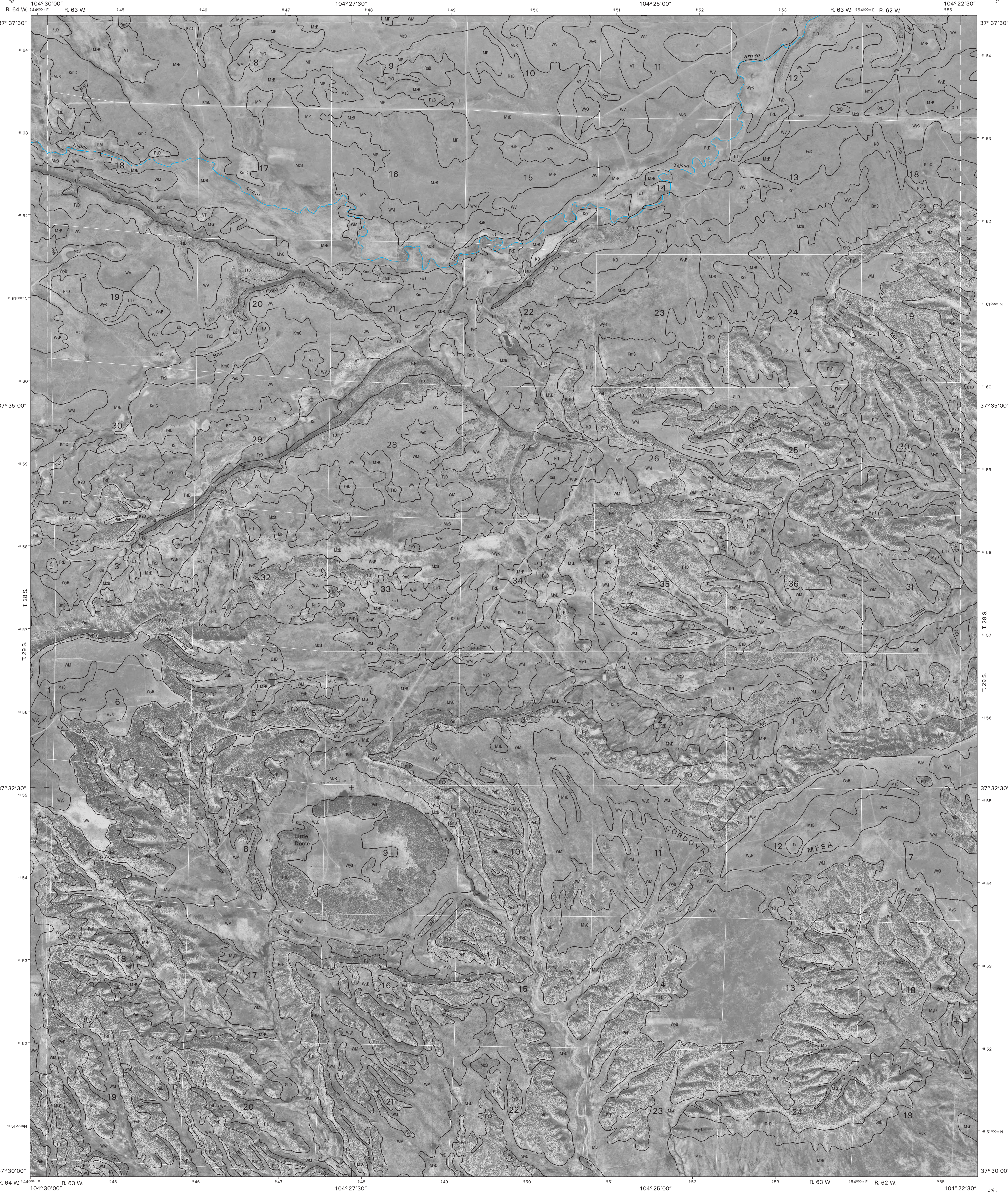
4	5
17	19
33	35

INDEX TO ADJOINING 7.5 MAPS

PRYOR SE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 18 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.





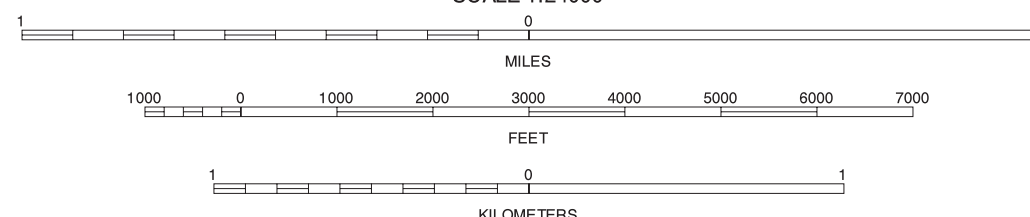
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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



SCALE 1:24000

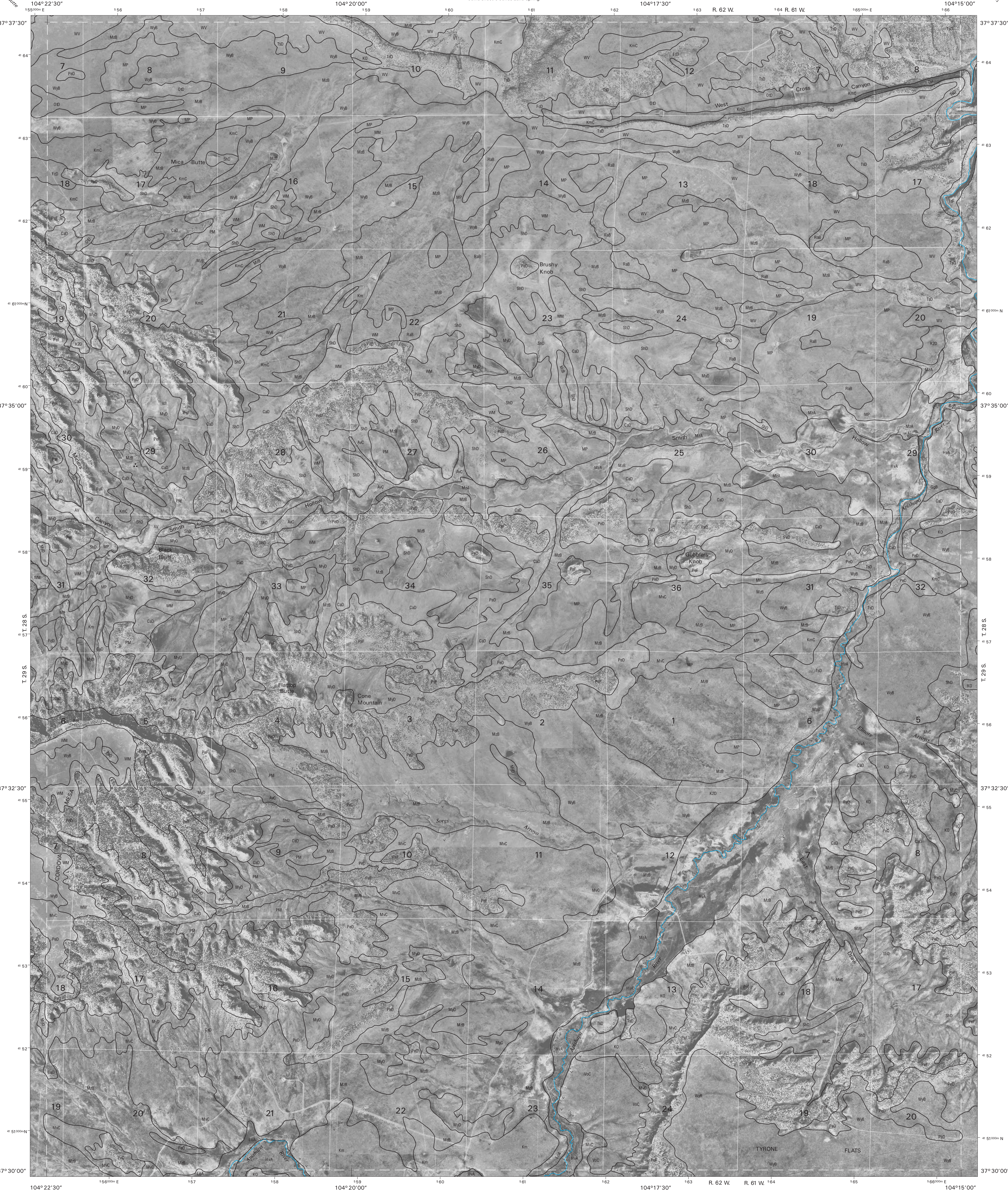
4	5	6
18		20
34	35	36

INDEX TO ADJOINING 7.5 MAPS

LITTLE DOME, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 19 OF 110

Soil map delineations extending beyond the dashed white quadrangle nealtine are for reference only and are included on adjacent map sheets.

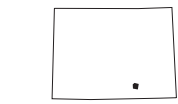




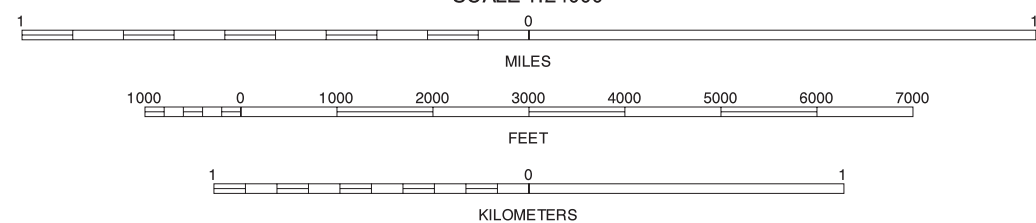
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988-1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



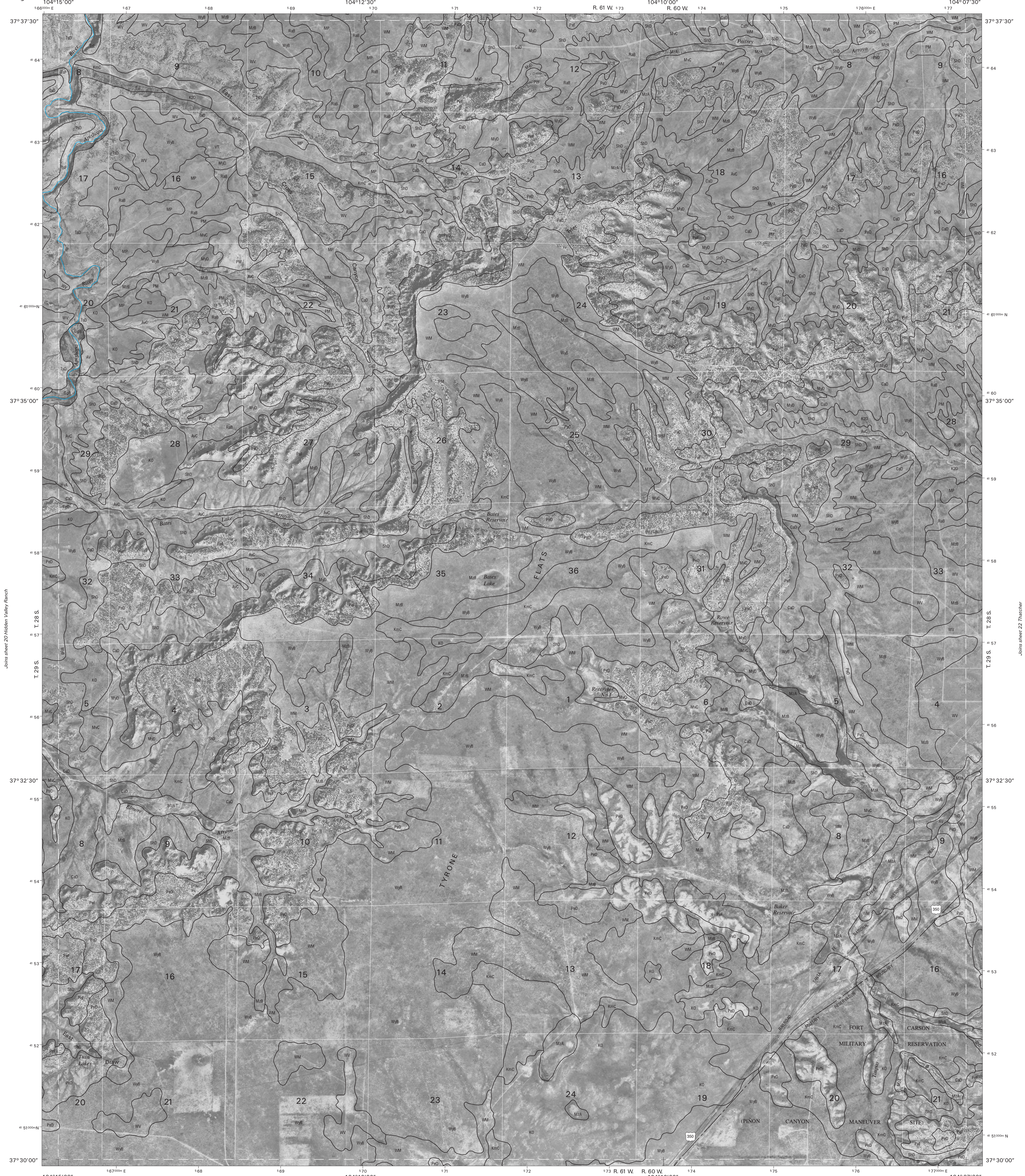
5	6	7
19	20	21
35	36	37

INDEX TO ADJOINING 7.5-MINUTE MAPS

HIDDEN VALLEY RANCH, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 20 OF 110

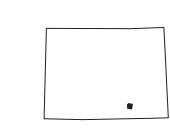
Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.



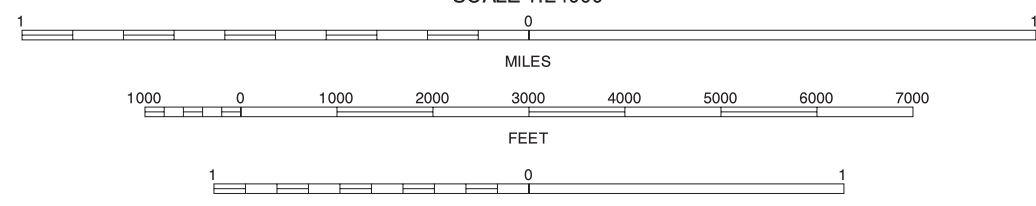


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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



6	7	8
20		22
36	37	38

INDEX TO ADJOINING 7.5-MINUTE MAPS

BATES LAKE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 21 OF 110

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.

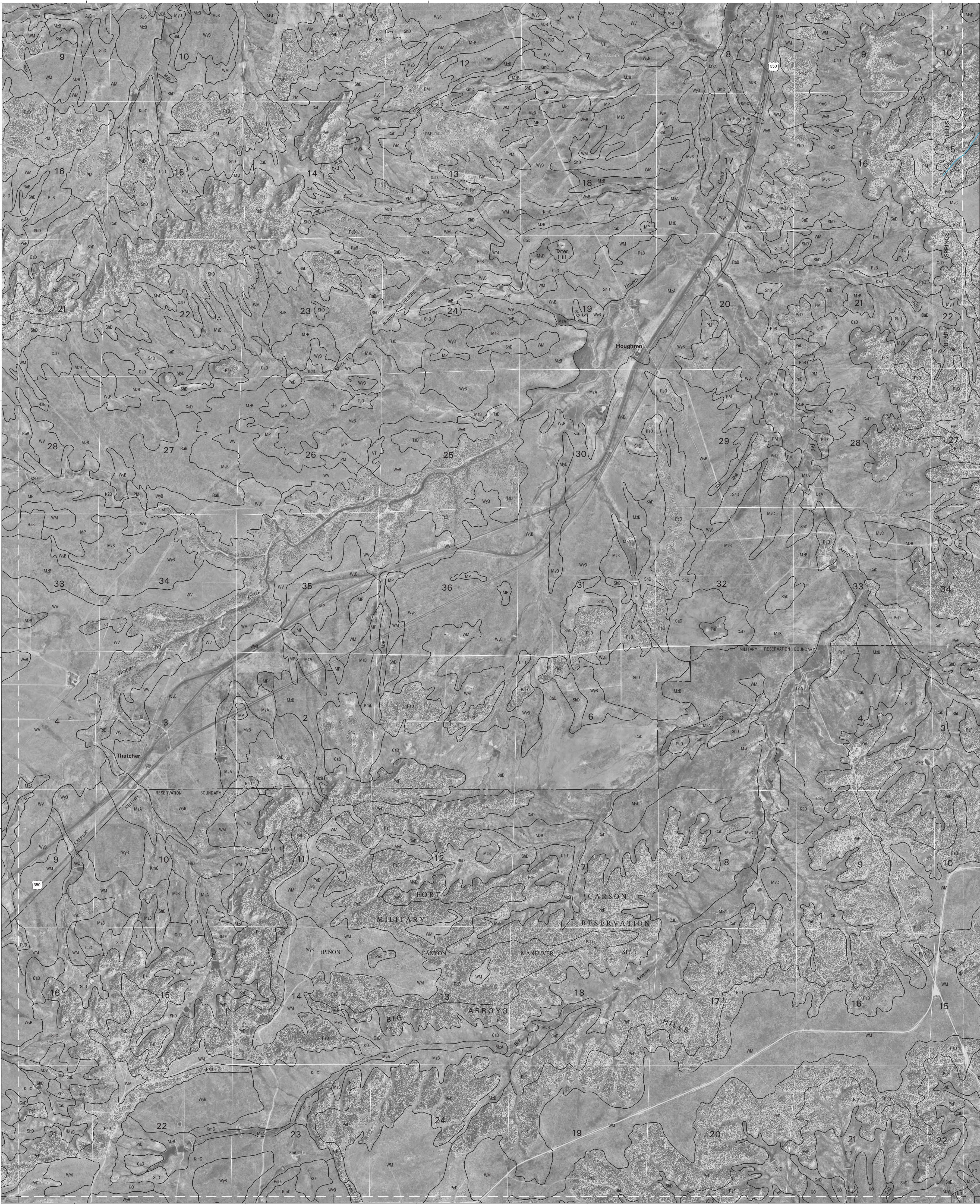


7	8	9
21	22	23
37	38	39

INDEX TO ADJOINING 7.5 MAPS

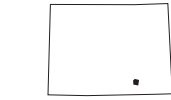
THATCHER, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 22 OF 110

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



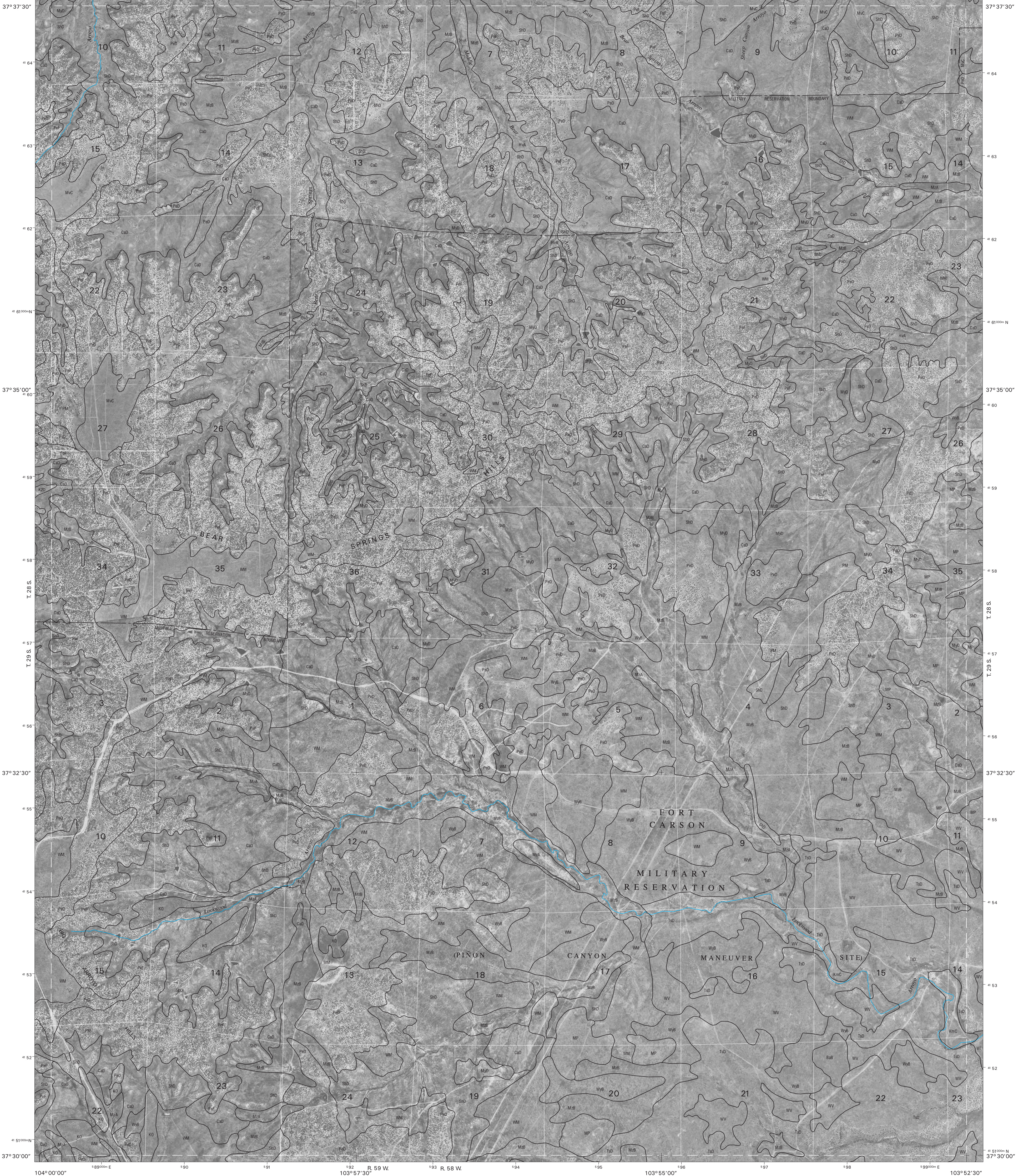
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988-1989 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION





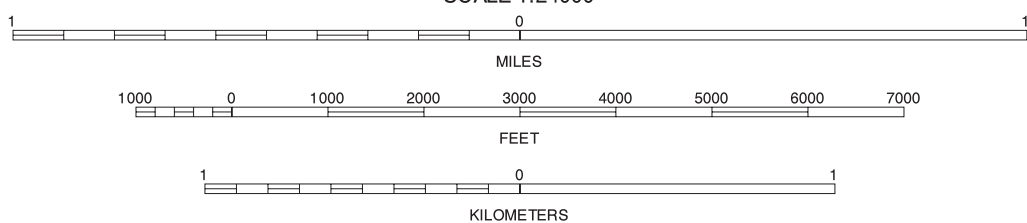
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988-1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



8	9	10
22	23	24
38	39	40

INDEX TO ADJOINING 7.5 MAPS

LOCKWOOD ARROYO, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 23 OF 110

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



Joins sheet 10 Sheep Canyon

Joins sheet 11  
Packers Gap

Joins sheet 9  
Doss Canyon



Joins sheet 23 Lockwood Arroyo

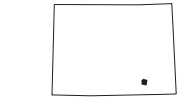
Joins sheet 25 O V Mesa

Joins sheet 29  
Rock Crossing

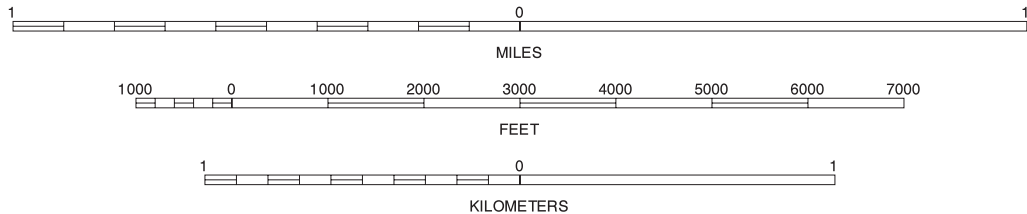
Joins sheet 41  
Johnson Canyon

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



Joins sheet 40 Doss Canyon North

SCALE 1:24000

9	10	11
23	24	25
39	40	41

INDEX TO ADJOINING 7.5 MAPS

STAGE CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 24 OF 110

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



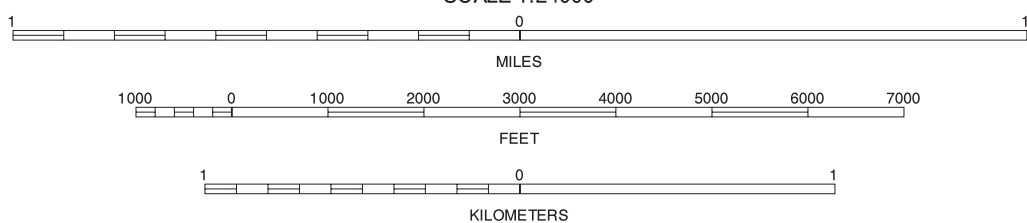


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988-1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
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QUADRANGLE LOCATION



10	11	12
24	25	26
40	41	42

INDEX TO ADJOINING 7.5 MAPS

O V MESA, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 25 OF 110

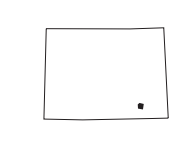
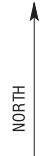
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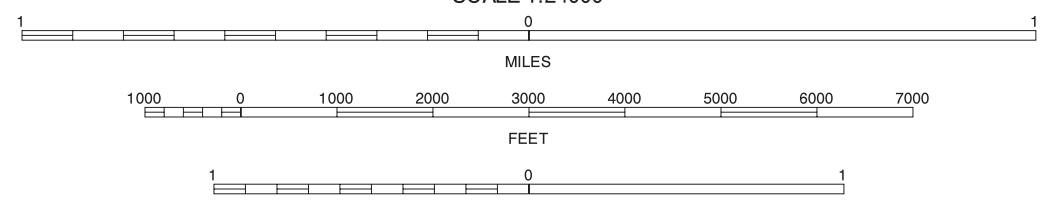


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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



11	12	13
25	26	27
41	42	43

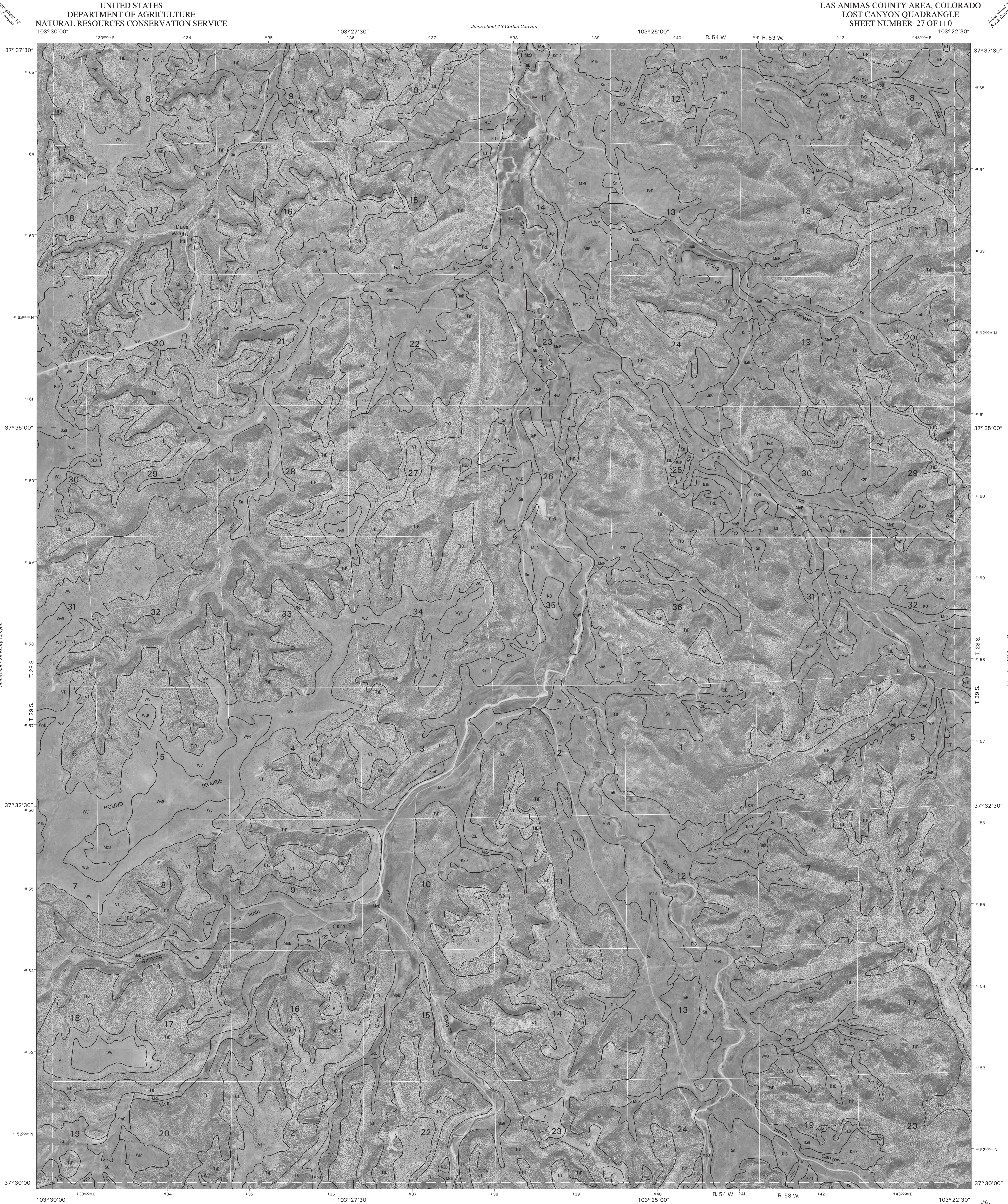
INDEX TO ADJOINING 7.5 MAPS

- 11 PACKERS GAP
- 12 RILEY CANYON
- 13 CORBIN CANYON
- 25 O V MESA
- 27 LOST CANYON
- 41 JOHNSON CANYON
- 42 PLUM CANYON
- 43 ICEHOUSE CANYON

BEATY CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 26 OF 110

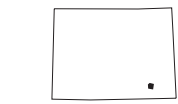
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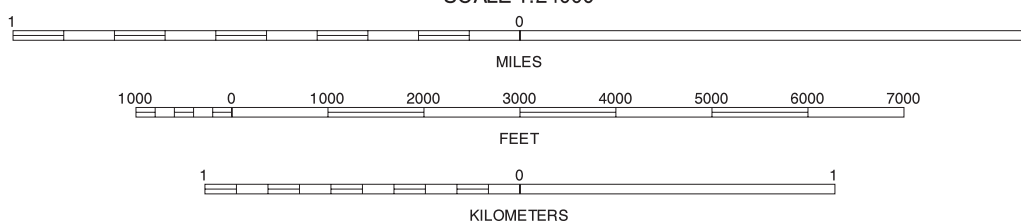


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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



12	13	14
26	27	28
42	43	44

INDEX TO ADJOINING 7.5 MAPS

LOST CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 27 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



Joins sheet 13  
Carpenter Canyon

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
BROWN CANYON QUADRANGLE  
SHEET NUMBER 28 OF 110

Joins sheet 15  
Ninaview



Joins sheet 27 Lost Canyon

Joins sheet 29 Plug Hat Ranch

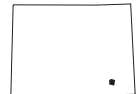
Joins sheet 43  
Robbers Roost Canyon

Joins sheet 45  
Black Canyon

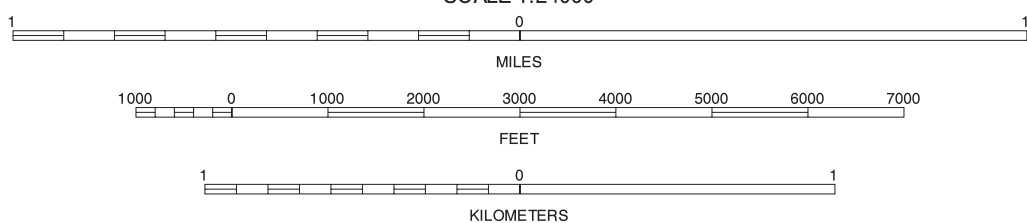
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1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



Joins sheet 44 Robbers Roost Canyon

13	14	15
27	28	29
43	44	45

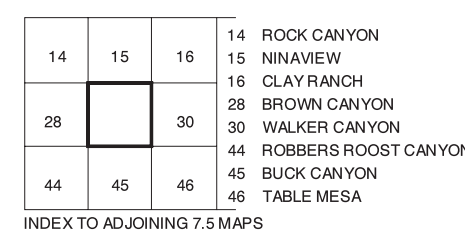
INDEX TO ADJOINING 7.5 MAPS

BROWN CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 28 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.

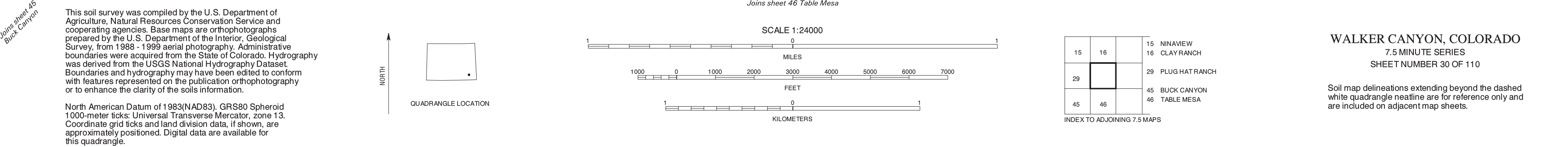
13	CORBIN CANYON
14	ROCK CANYON
15	NINAVIEW
27	LOST CANYON
29	PLUG HAT RANCH
43	ICEHOUSE CANYON
44	ROBBERS ROOST CANYON
45	BUCK CANYON



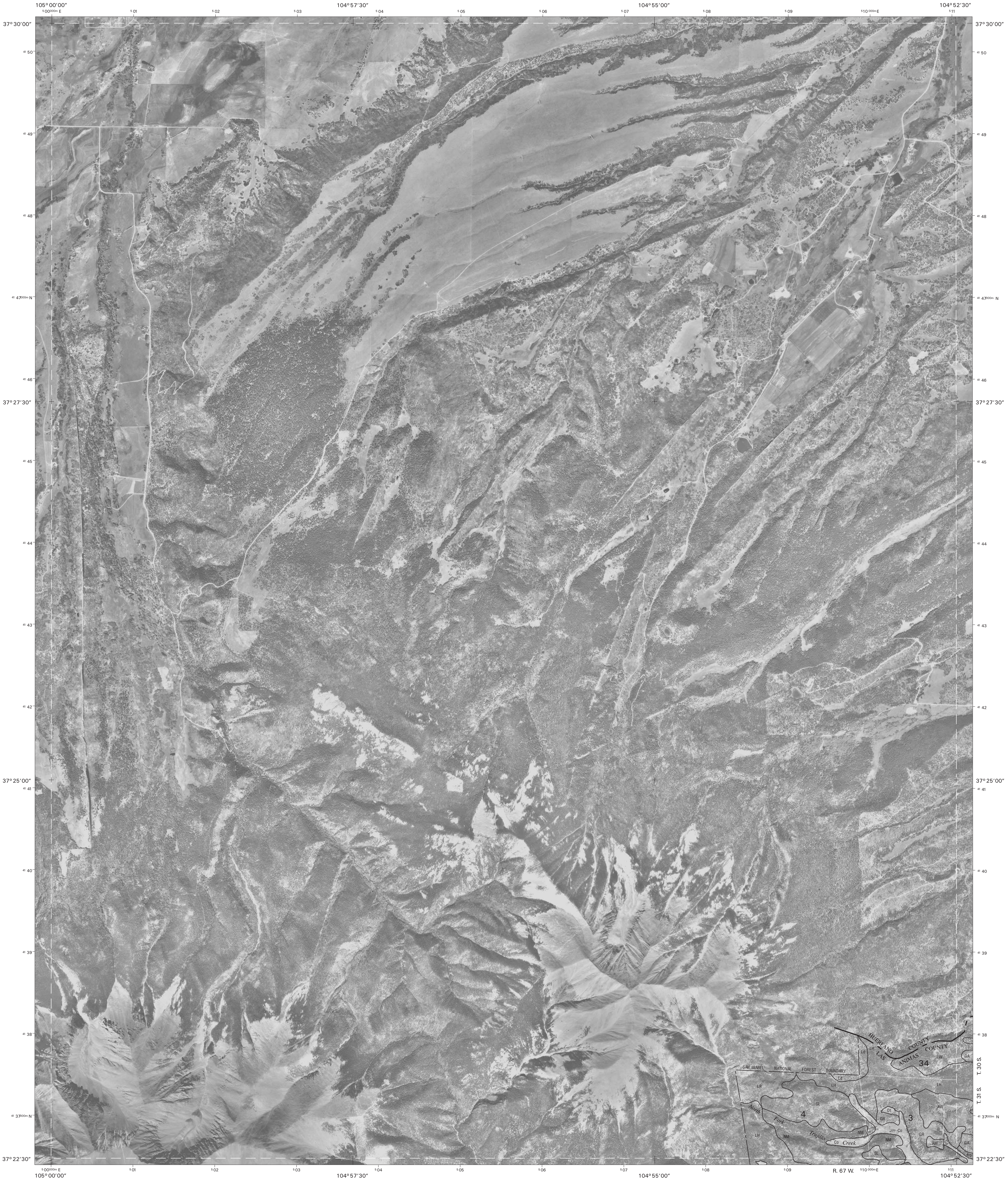


Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





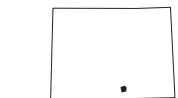




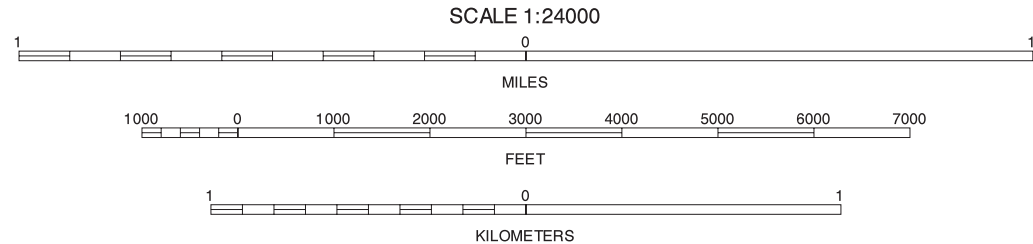
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000 meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



32	32	SANTA CLARA
47	47	CULCHARAS PASS
48	48	HERLICK CANYON
49	49	GULNARE

INDEX TO ADJOINING 7.5 MAPS

SPANISH PEAKS, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 31 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatlne are for reference only and are included on adjacent map sheets.

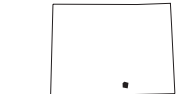




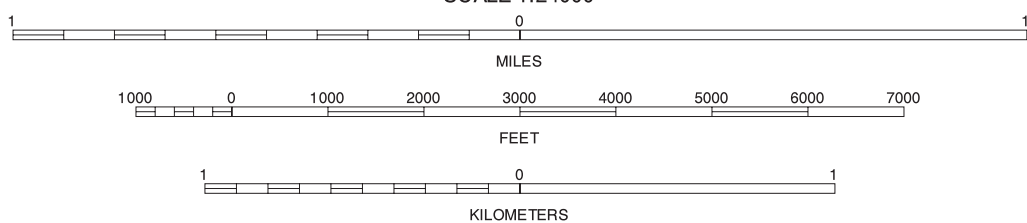
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North American Datum of 1983(NAD83), GRS80 Spheroid 1000 meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



		17
31		33
48	49	50

INDEX TO ADJOINING 7.5 MAPS

17 PRYOR  
31 SPANISH PEAKS  
33 AGUILAR  
48 HERLUCK CANYON  
49 GULNARE  
50 DELAGUA

SANTA CLARA, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 32 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



LAS ANIMAS COUNTY AREA, COLORADO  
AGUILAR QUADRANGLE  
SHEET NUMBER 33 OF 110

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North American Datum of 1983(NAD83), GRS80 Spheroid

QUADRANGLE LOCATION

AGUILAR, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 33 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

SCALE 1:24000

0 1

MILES

1000 0 1000 2000 3000 4000 5000 6000 7000

FEET

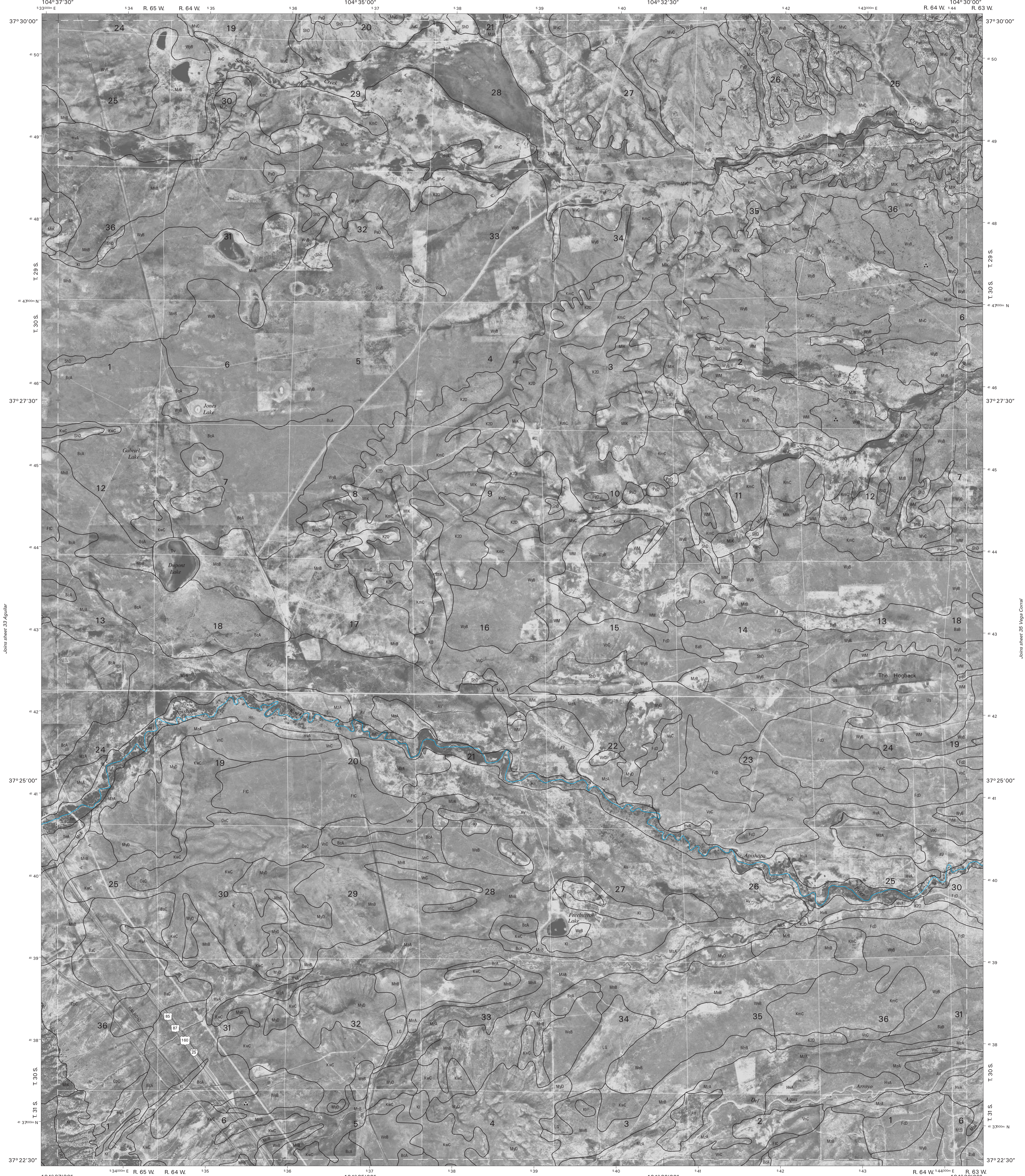
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KILOMETERS

	17	18	17 P
			18 F
32		34	32 S
			34 T
49	50	51	49 G
			50 D
			51 L

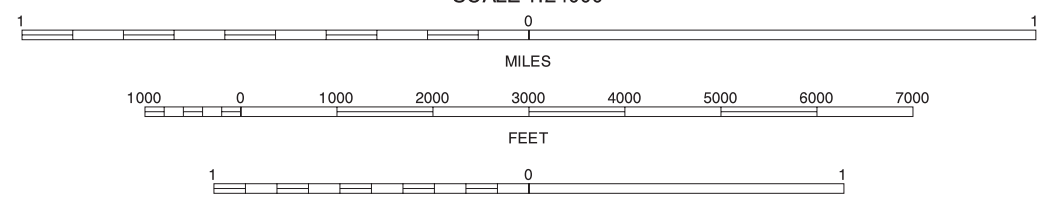
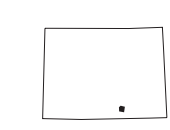
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000 meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



17	18	19
33		35
50	51	52

17	PRYOR SE
18	LITTLE DOME
19	AGUILAR
33	VEGA CORRAL
50	DELAGUA
51	LUDLOW
52	HOEHNE

THE HOGBACK, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 34 OF 110

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.

INDEX TO ADJOINING 7.5 MAPS

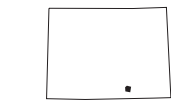




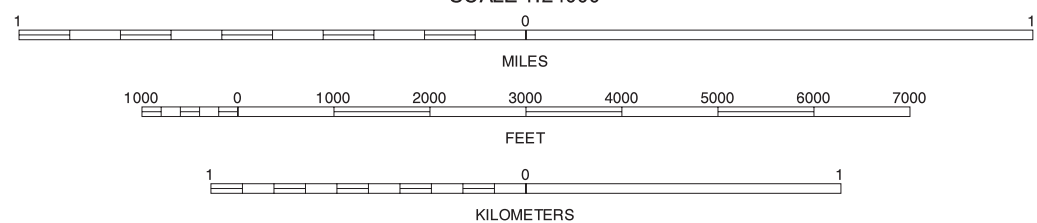
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



18	19	20
34	35	36
51	52	53

INDEX TO ADJOINING 7.5-MINUTE MAPS

VEGA CORRAL, COLORADO  
7.5-MINUTE SERIES  
SHEET NUMBER 35 OF 110

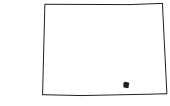
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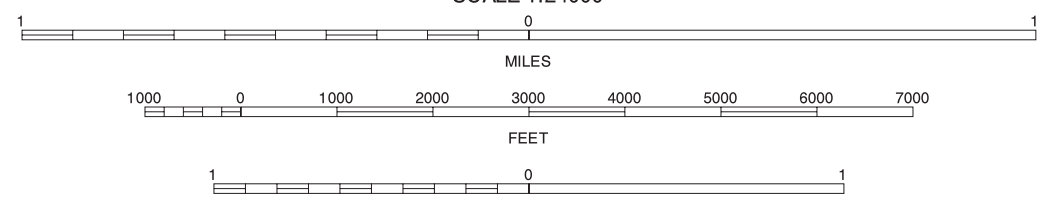


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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



SCALE 1:24000

19	20	21
35	36	37
52	53	54

INDEX TO ADJOINING 7.5 MAPS

SEVEN LAKES RESERVOIR, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 36 OF 110

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.

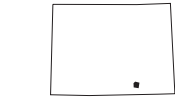




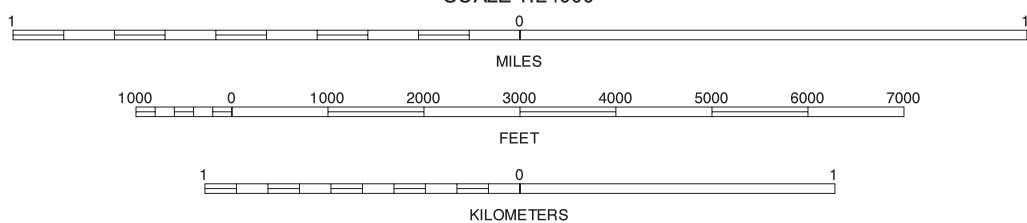
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



20	21	22
36	37	38
53	54	55

INDEX TO ADJOINING 7.5 MAPS

TYRONE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 37 OF 110

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.

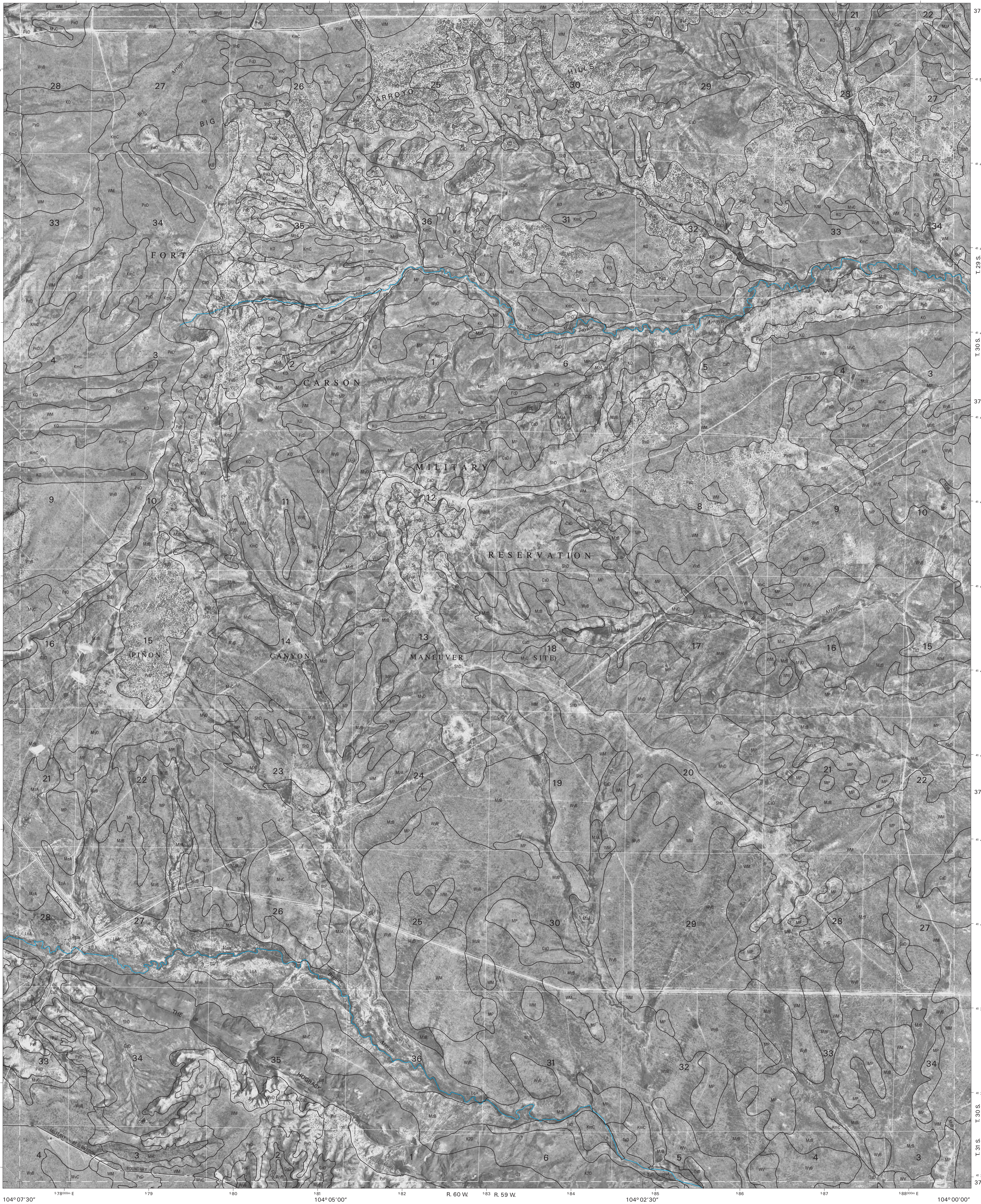


Joins sheet 22 Thatcher

R. 60 W. R. 59 W.

Joins sheet 55 Lambing Spring

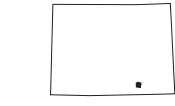
R. 60 W. R. 59 W.



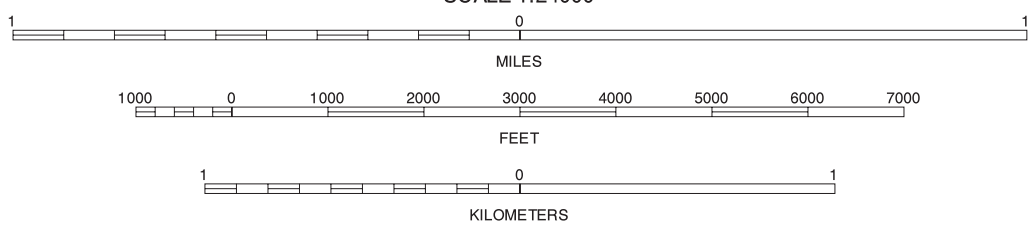
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



21	22	23
37	38	39
54	55	56

INDEX TO ADJOINING 7.5 MAPS

BROWN SHEEP CAMP, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 38 OF 110

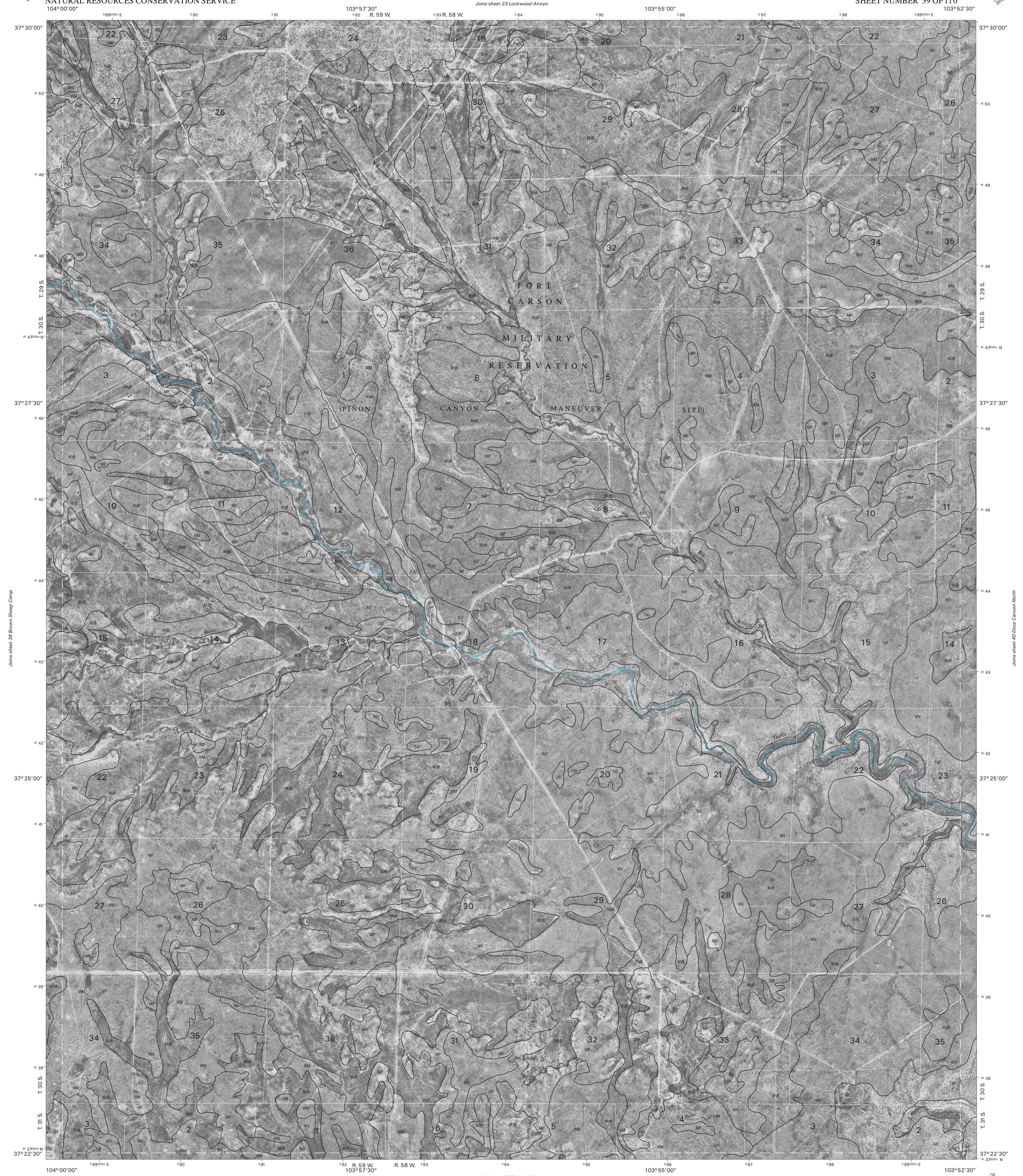
Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.



Joins sheet 23 Lockwood Arroyo

Joins sheet 24  
Stage Canyon

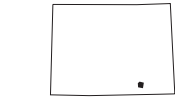
Joins sheet 22  
Thatcher



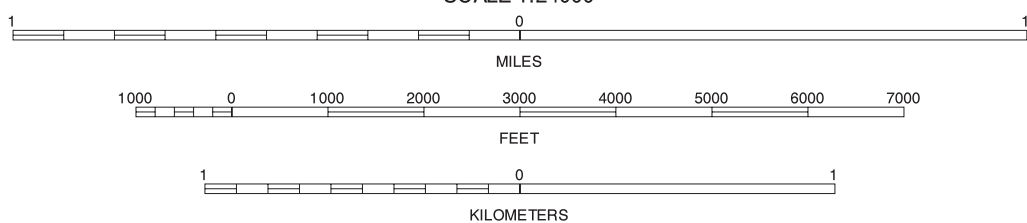
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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



Joins sheet 56 Painted Canyon

Joins sheet 57  
Doss Canyon South

Joins sheet 55  
Lambing Spring

22	23	24	22 THATCHER
			23 LOCKWOOD ARROYO
			24 STAGE CANYON
38		40	38 BROWN SHEEP CAMP
			40 DOSS CANYON NORTH
			55 LAMBING SPRING
55	56	57	56 PAINTED CANYON
			57 DOSS CANYON SOUTH

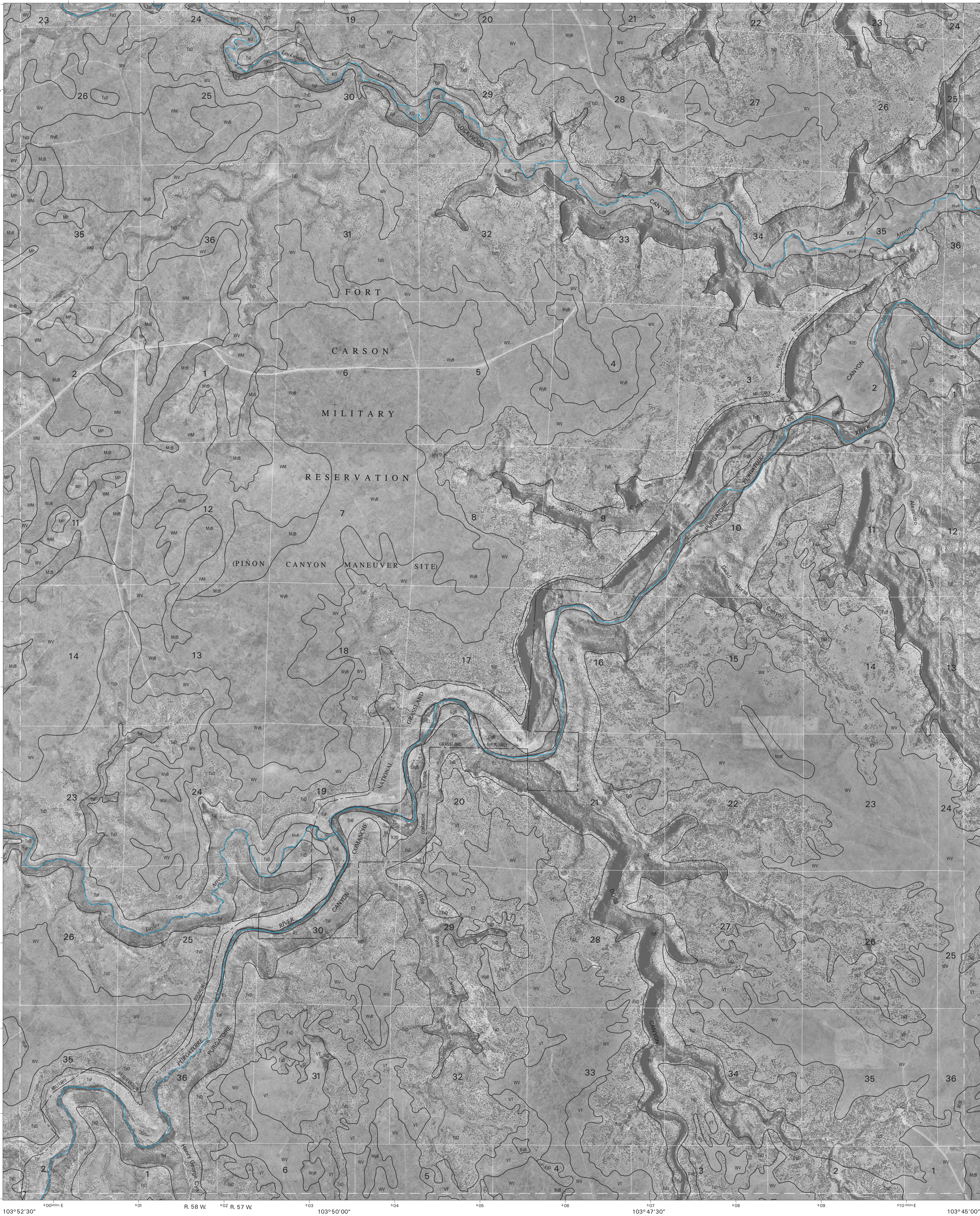
INDEX TO ADJOINING 7.5 MAPS

INDEX TO ADJOINING 7.5 MAPS

ROCK CROSSING, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 39 OF 110

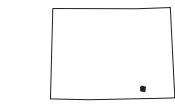
Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



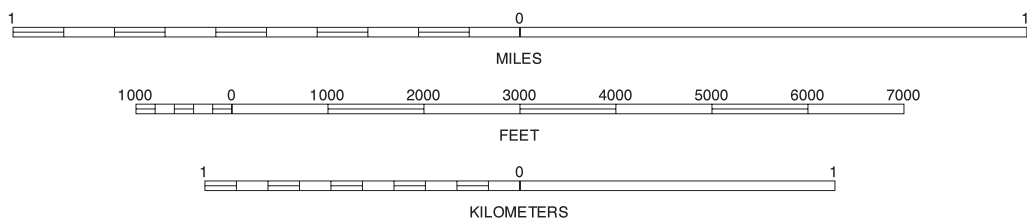


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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



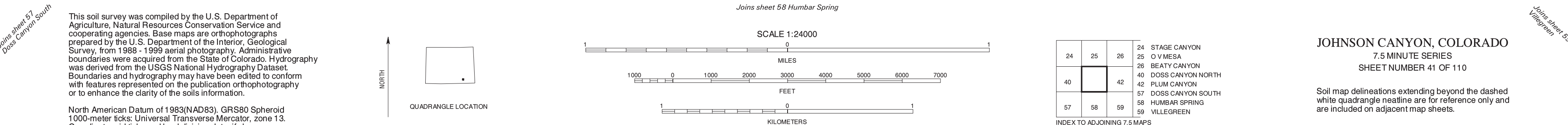
23	24	25
39	41	58
56	57	58

INDEX TO ADJOINING 7.5 MAPS

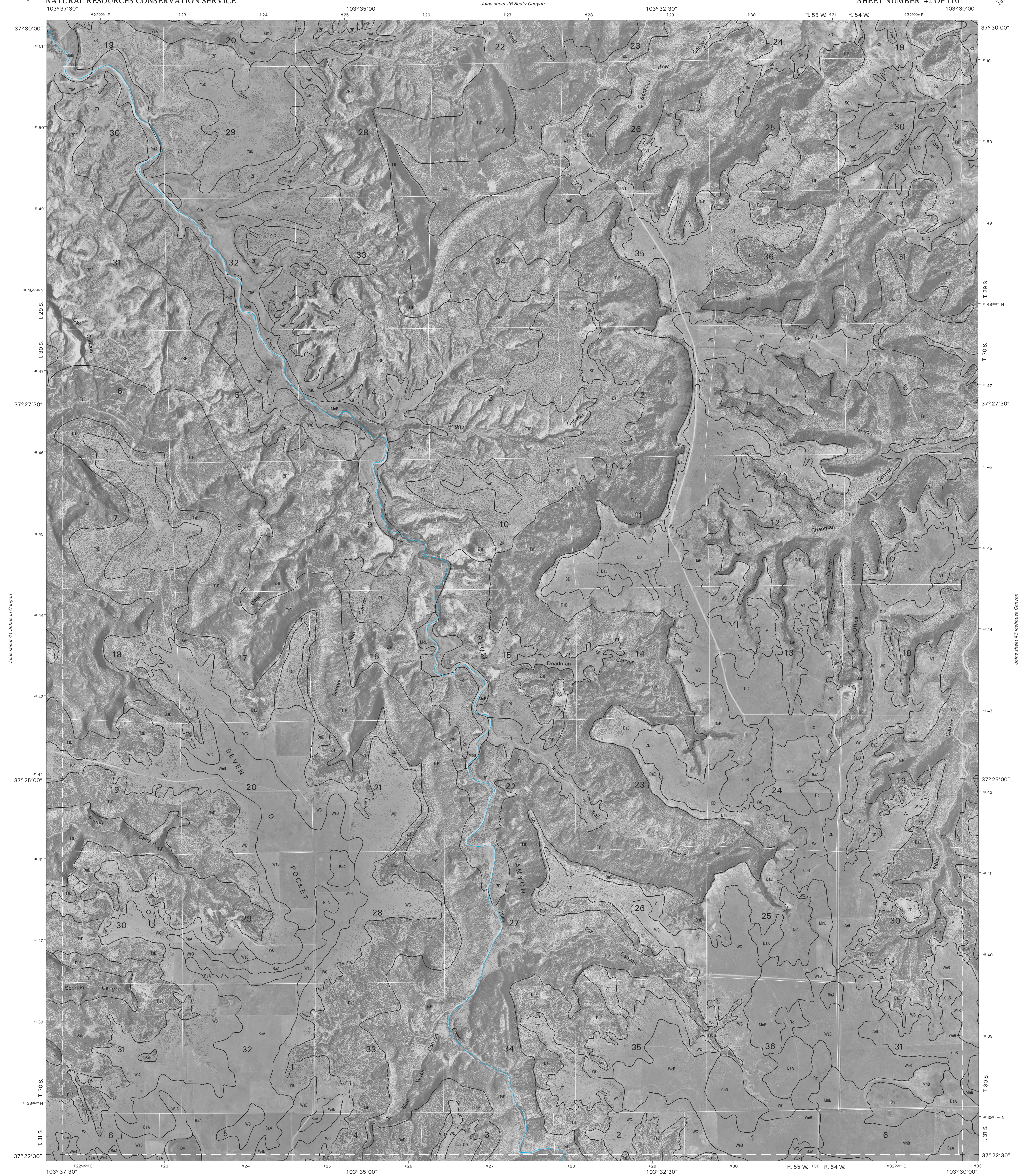
DOSS CANYON NORTH, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 40 OF 110

Soil map delineations extending beyond the dashed white quadrangle nealline are for reference only and are included on adjacent map sheets.



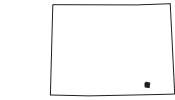




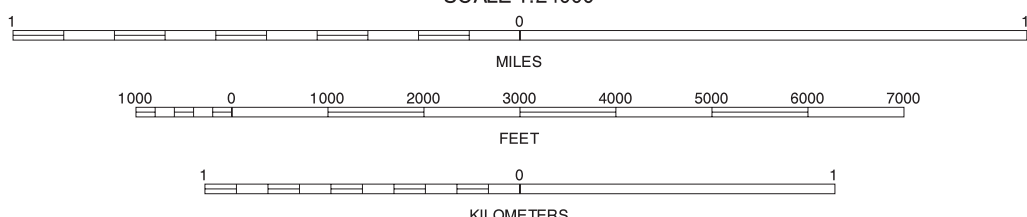


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1000-meter ticks: Universal Transverse Mercator, zone 13.  
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QUADRANGLE LOCATION



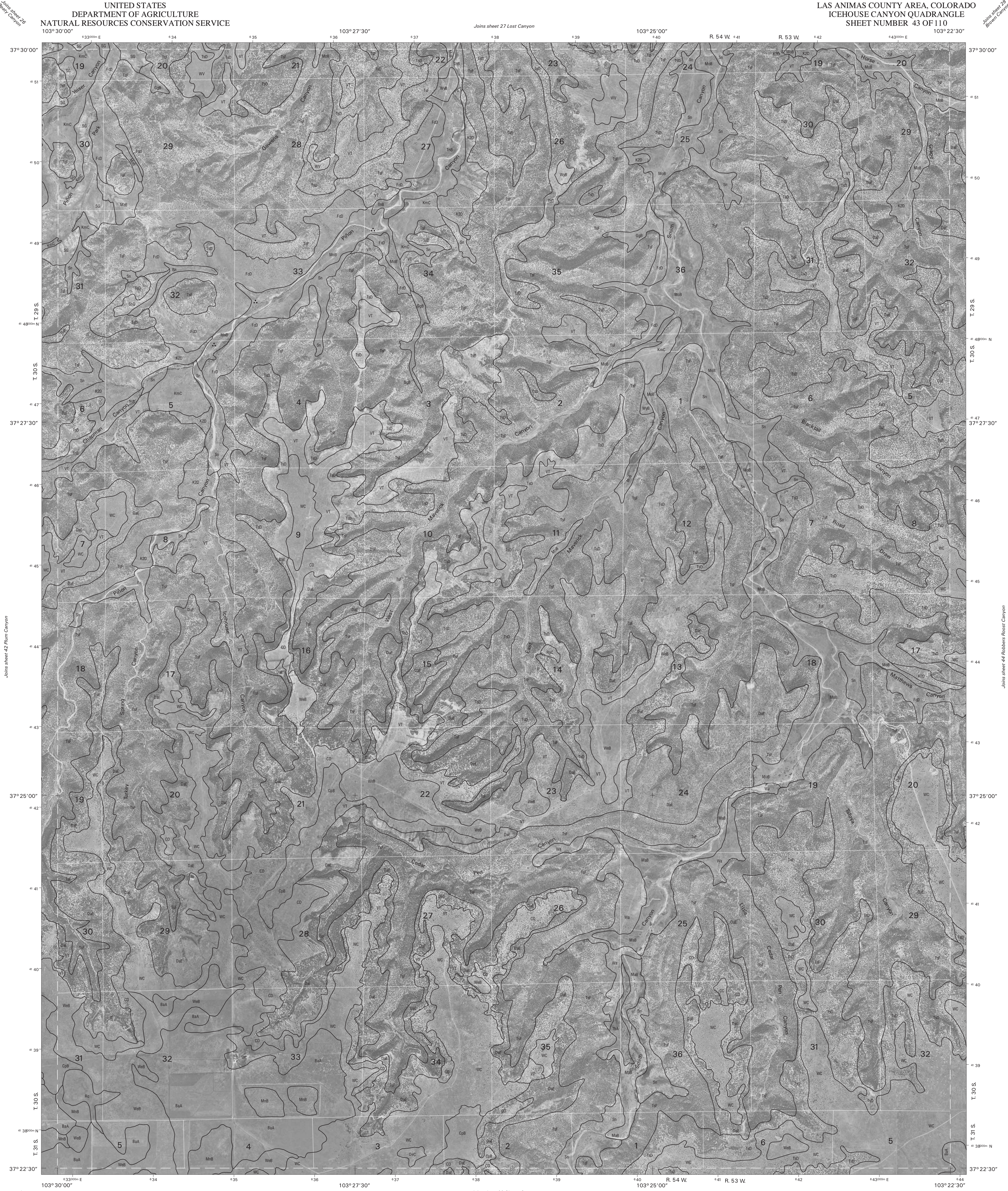
25	26	27	28
41	43	44	45
58	59	60	61

INDEX TO ADJOINING 7.5 MAPS

PLUM CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 42 OF 110

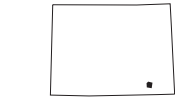
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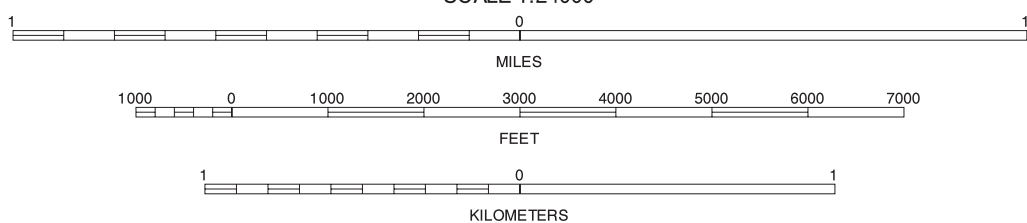


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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



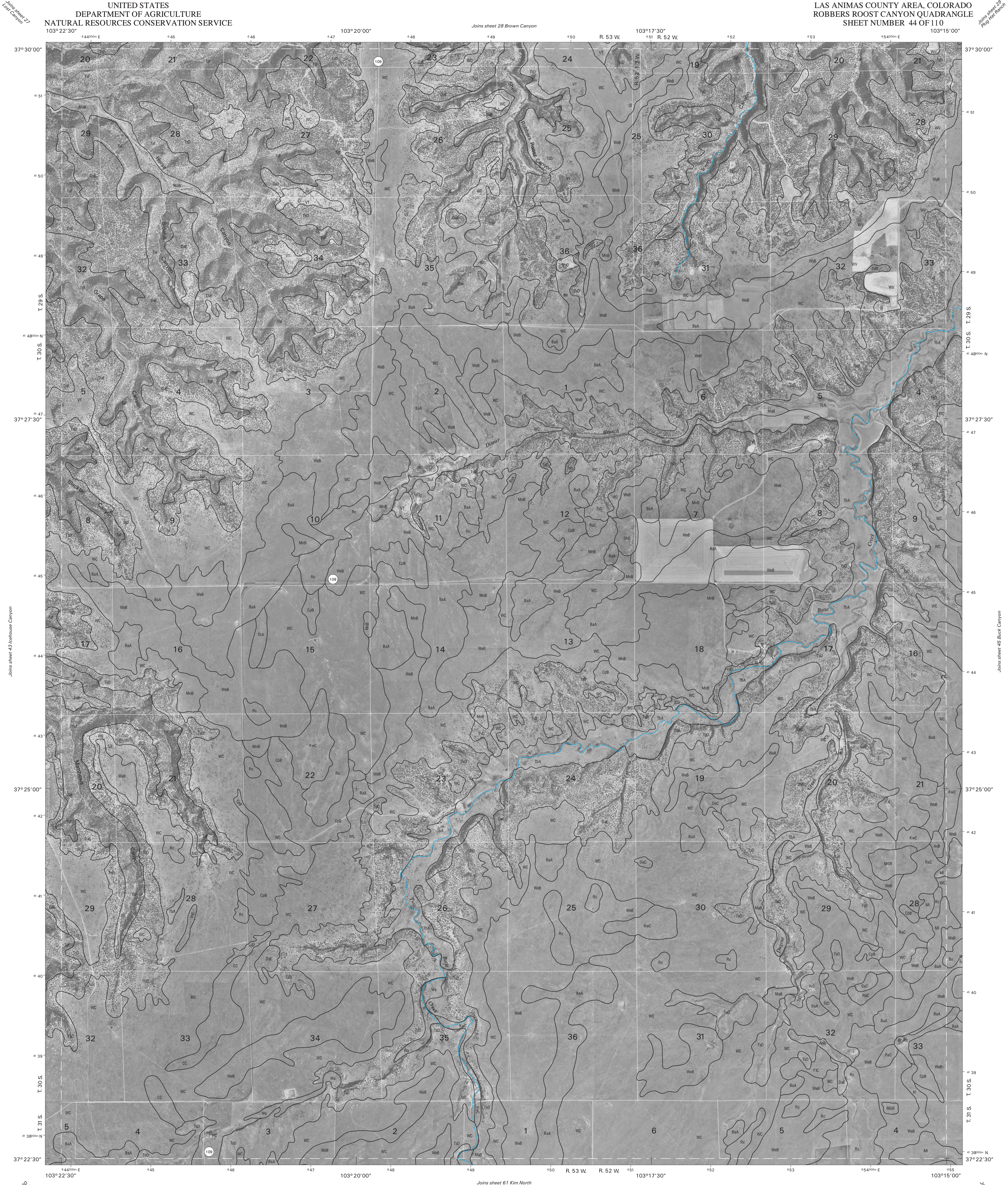
26	27	28	26 BEATY CANYON
			27 LOST CANYON
			28 BROWN CANYON
42		44	42 PLUM CANYON
			44 ROBBERS ROOST CANYON
			59 VILLEGREEN
			60 CHERRY CANYON
59	60	61	61 KIM NORTH

INDEX TO ADJOINING 7.5 MAPS

ICEHOUSE CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 43 OF 110

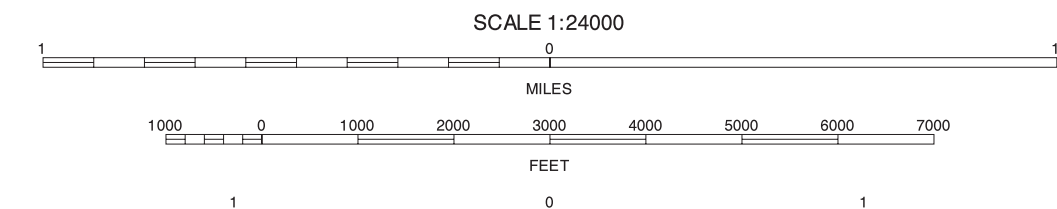
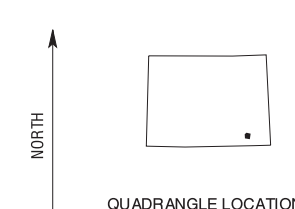
Soil map delineations extending beyond the dashed white quadrangle neatlne are for reference only and are included on adjacent map sheets.





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1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

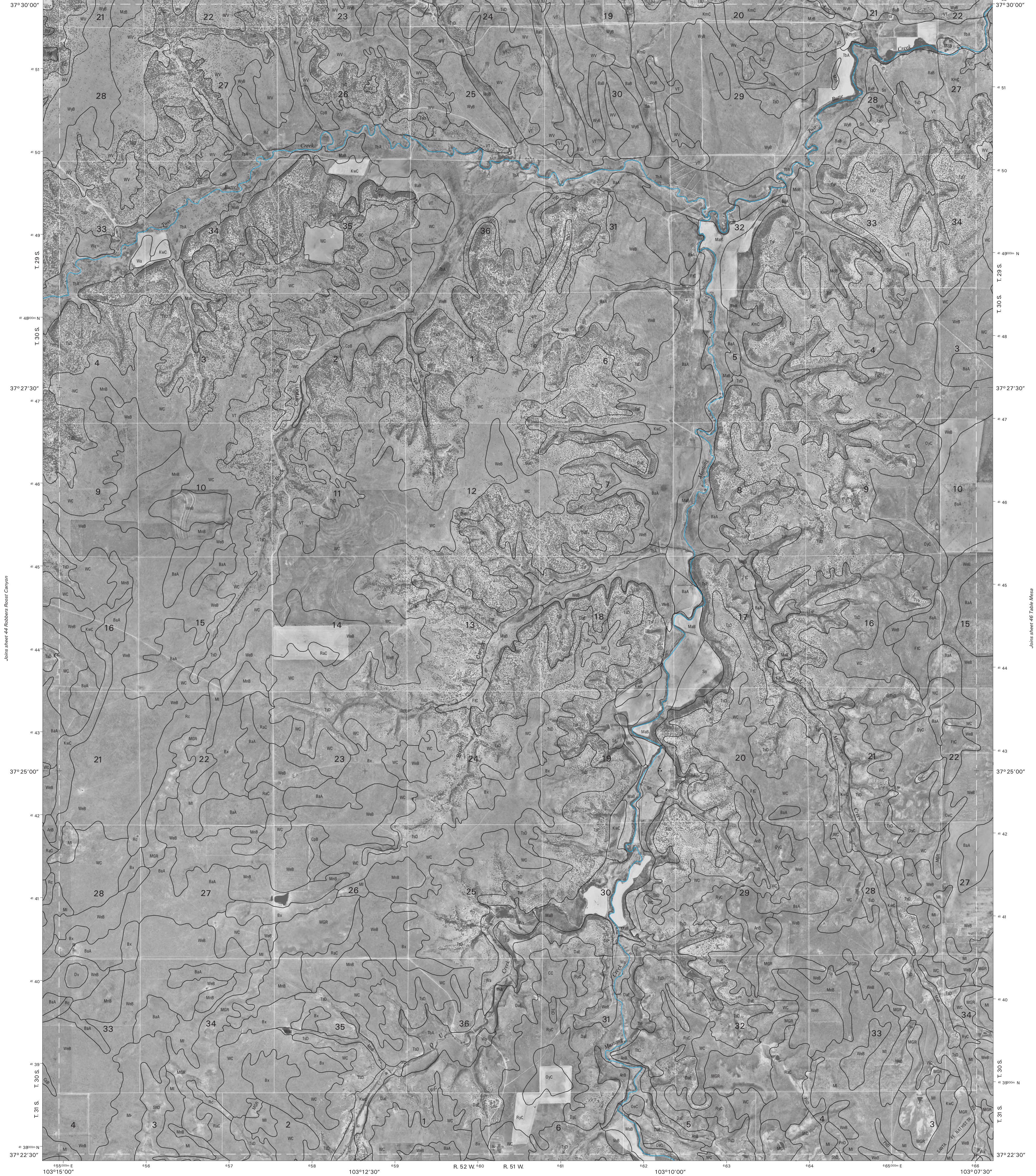


27	28	29
43	44	45
60	61	62

ROBBERS ROOST CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 44 OF 110

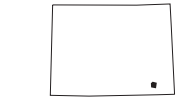
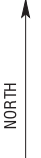
Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



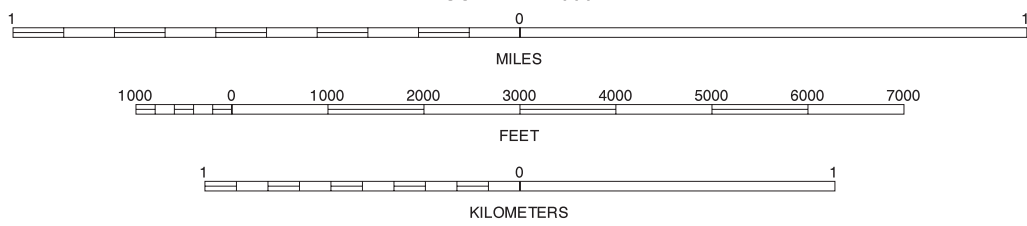


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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



28	29	30
44		46
61	62	63

INDEX TO ADJOINING 7.5 MAPS

BUCK CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 45 OF 110

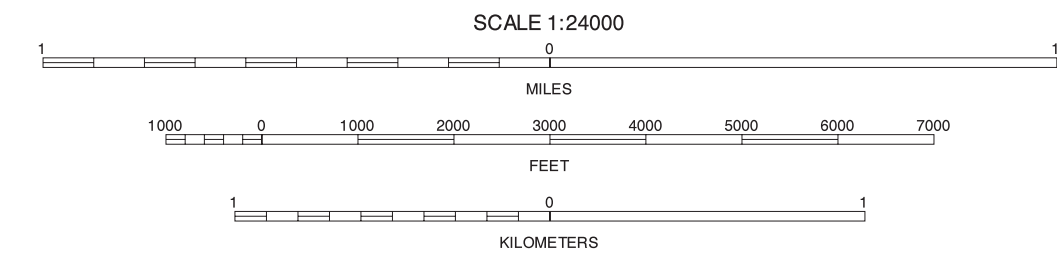
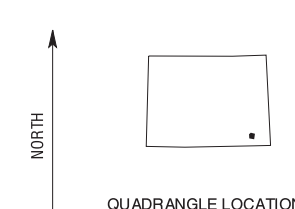
Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.





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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



29	30	29 PLUG HATRANCH 30 WALKER CANYON
45		45 BUCK CANYON
62	63	62 ANDRIX 63 UTLEYVILLE

TABLE MESA, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 46 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.

INDEX TO ADJOINING 7.5 MAPS



LAS ANIMAS COUNTY AREA, COLORADO  
CUCHARAS PASS QUADRANGLE  
SHEET NUMBER 47 OF 110

[illegible]

Joins sheet 48 Herlick Canyon

Joins sheet 64  
El Valle Creek

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps and orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988–1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

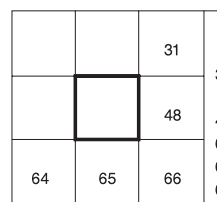
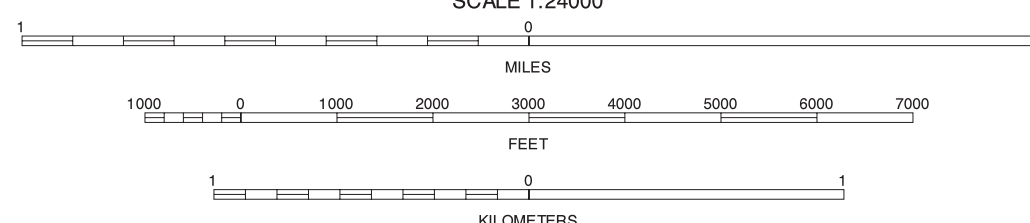
North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



*Joins sheet 65 Stonewall*

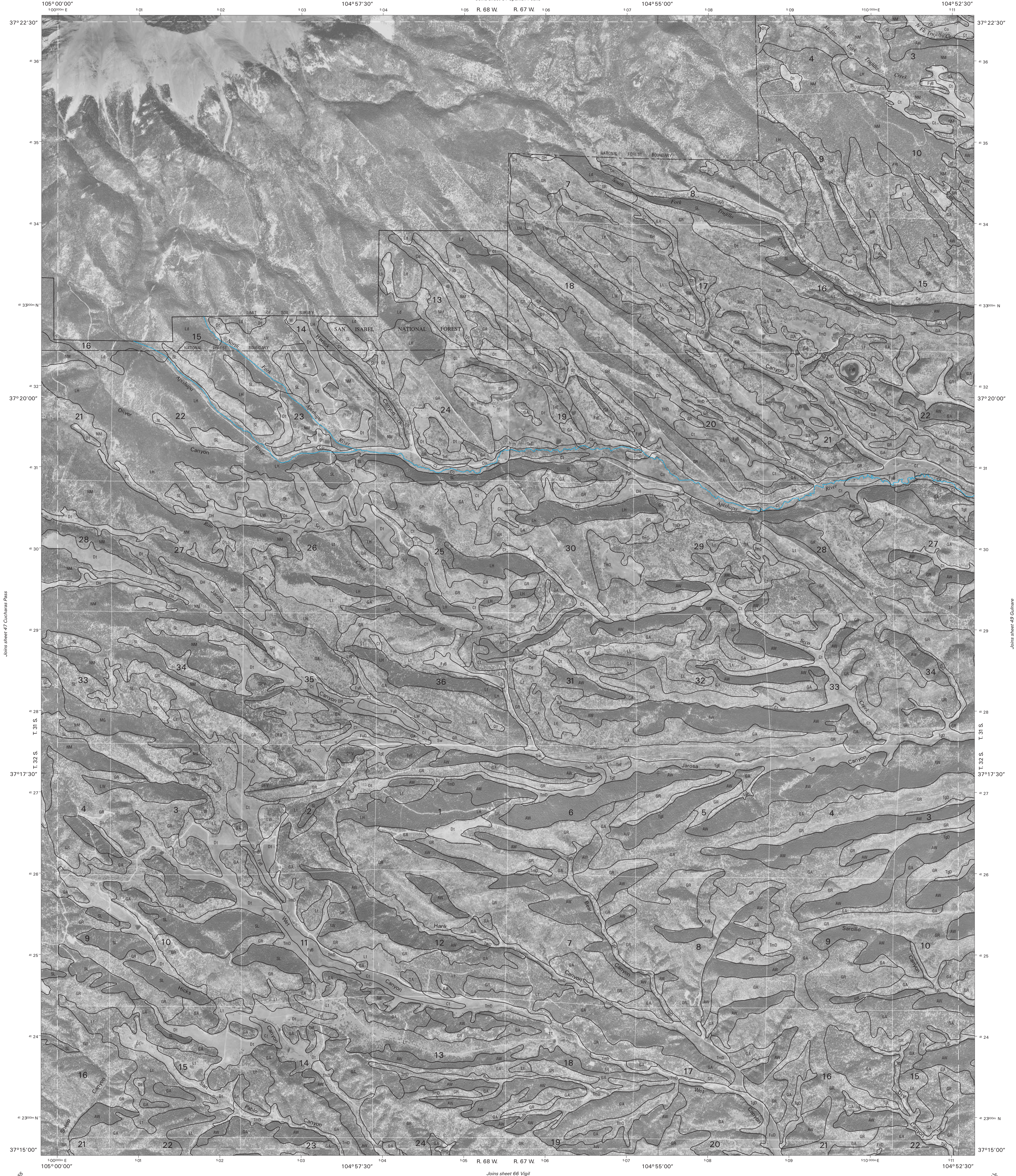


INDEX TO ADJOINING 7.5 MAPS

CUCHARAS PASS, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 47 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.





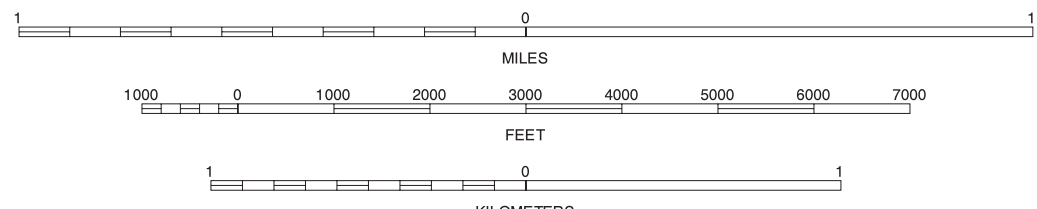
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



31	32	31 SPANISH PEAKS
47	49	32 SANTA CLARA
65	67	47 CUCHARAS PASS
		49 GULNARE
		65 STONEWALL
		66 VIGIL
		67 WESTON

INDEX TO ADJOINING 7.5 MAPS

HERLICK CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 48 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



Joins sheet 31  
Spanish Peaks

Joins sheet 33  
Aguilar

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
GULNARE QUADRANGLE  
SHEET NUMBER 49 OF 110



Joins sheet 48  
Hellick Canyon

Joins sheet 50  
Delagua

Joins sheet 66  
Vigil

Joins sheet 68  
Hawley

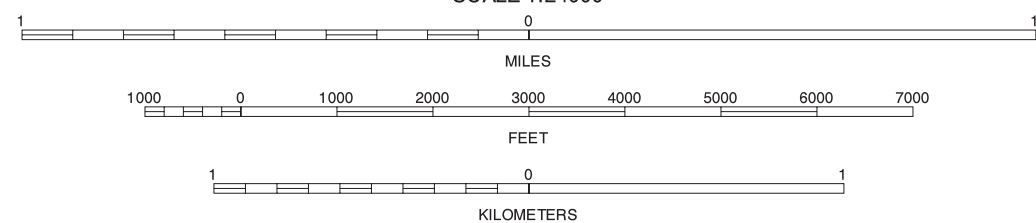
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North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



SCALE 1:24000

31	32	33
48	49	50
66	67	68

INDEX TO ADJOINING 7.5 MAPS

- 31 SPANISH PEAKS
- 32 SANTA CLARA
- 33 AGUILAR
- 48 HERLUCK CANYON
- 50 DELAGUA
- 66 VIGIL
- 67 WESTON
- 68 MADRID

GULNARE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 49 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartline are for reference only and are included on adjacent map sheets.



Joins sheet 32  
Santa Clara

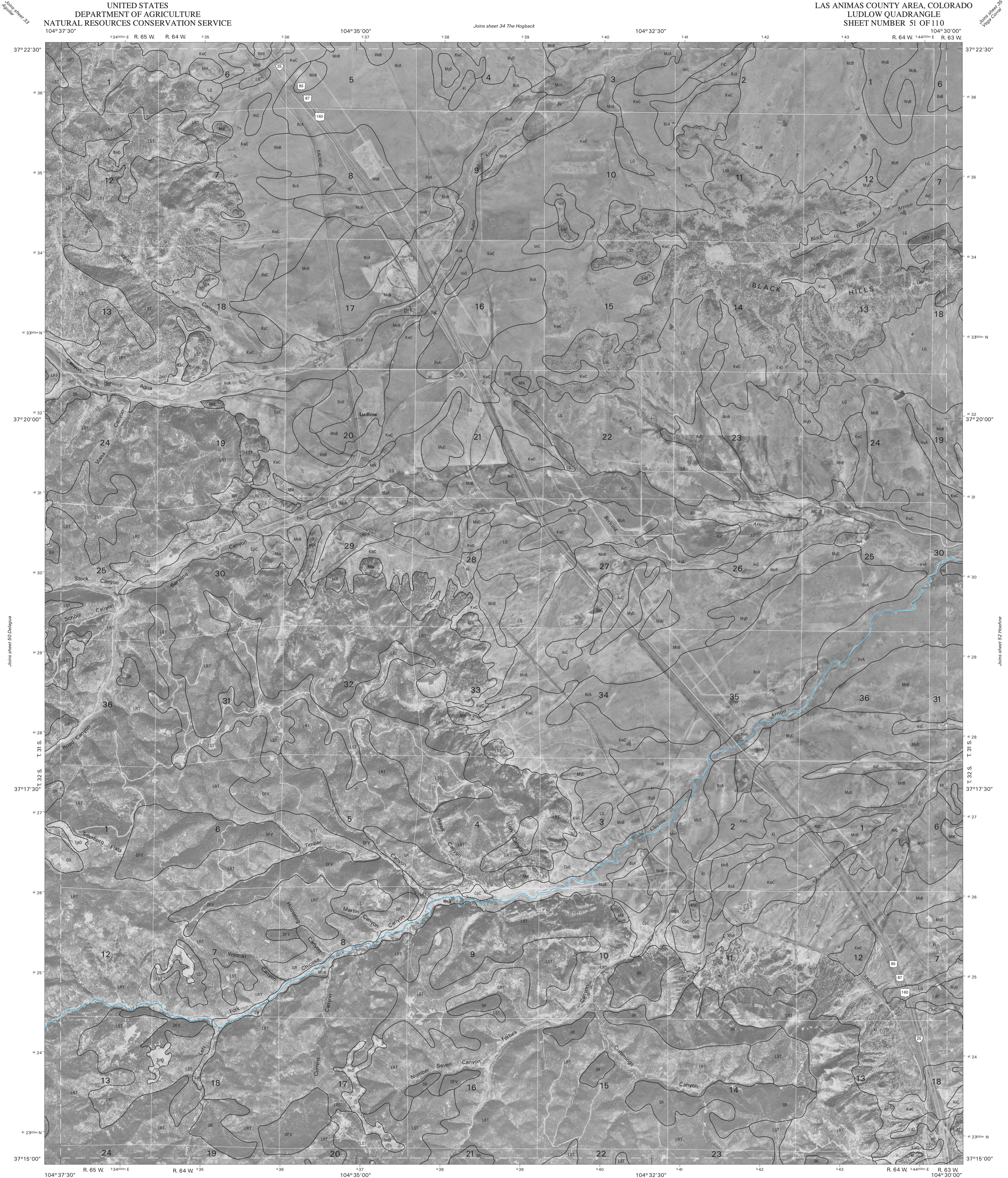
Joins sheet 34  
The HooBACK

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
DELAGUA QUADRANGLE  
SHEET NUMBER 50 OF 110

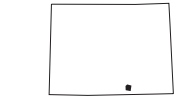
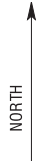




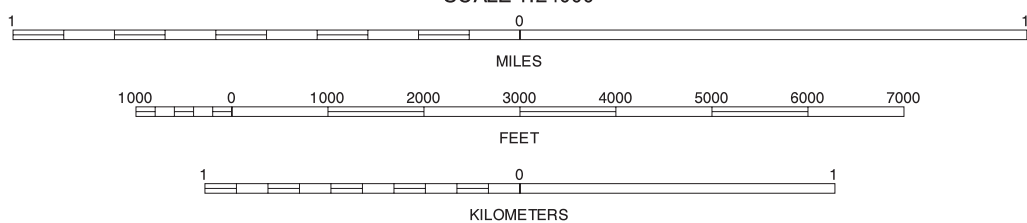


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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



33	34	35
50	51	52
68	69	70

INDEX TO ADJOINING 7.5 MAPS

LUDLOW, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 51 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

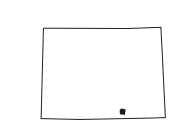




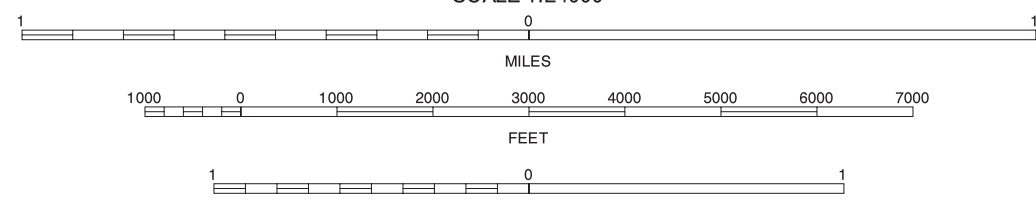
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



34	35	36
51	52	53
69	70	71

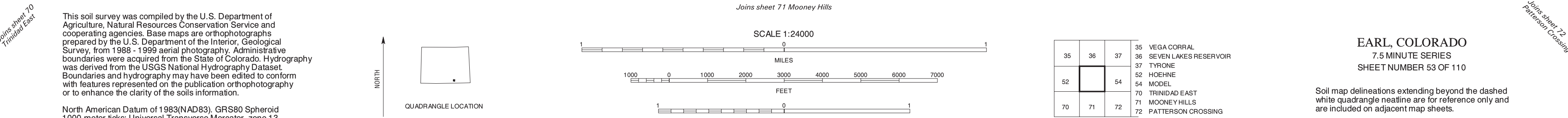
INDEX TO ADJOINING 7.5 MAPS

34 THE HOGBACK  
35 VEGA CORRAL  
36 SEVEN LAKES RESERVOIR  
51 LUDLOW  
52 EARL  
53 TRINIDAD WEST  
69 TRINIDAD EAST  
70 TRINIDAD EAST  
71 MOONEY HILLS

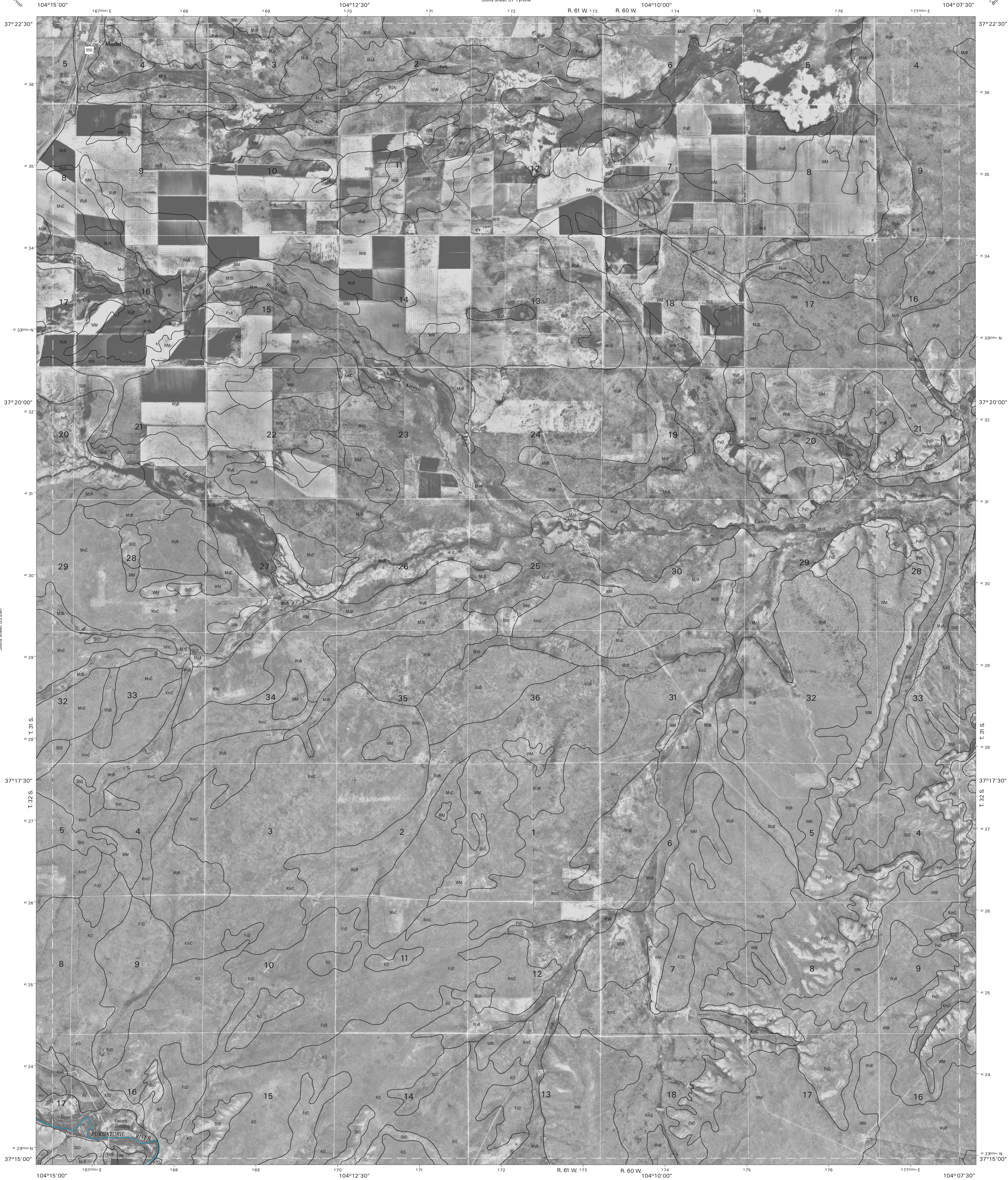
HOEHNE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 52 OF 110

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.





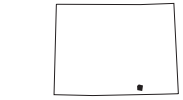




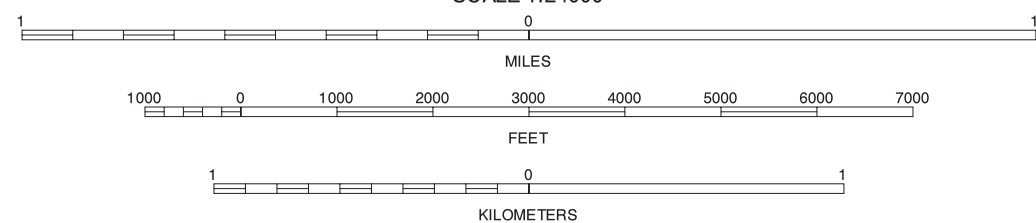
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



36	37	38
53	54	55
71	72	73

INDEX TO ADJOINING 7.5 MAPS

36 SEVEN LAKES RESERVOIR  
37 TYRONE  
38 BROWN SHEEP CAMP  
53 EARL  
54 LAMING SPRING  
55 MOONEY HILLS  
72 PATTERSON CROSSING  
73 TRINCHERA CAVE

MODEL, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 54 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

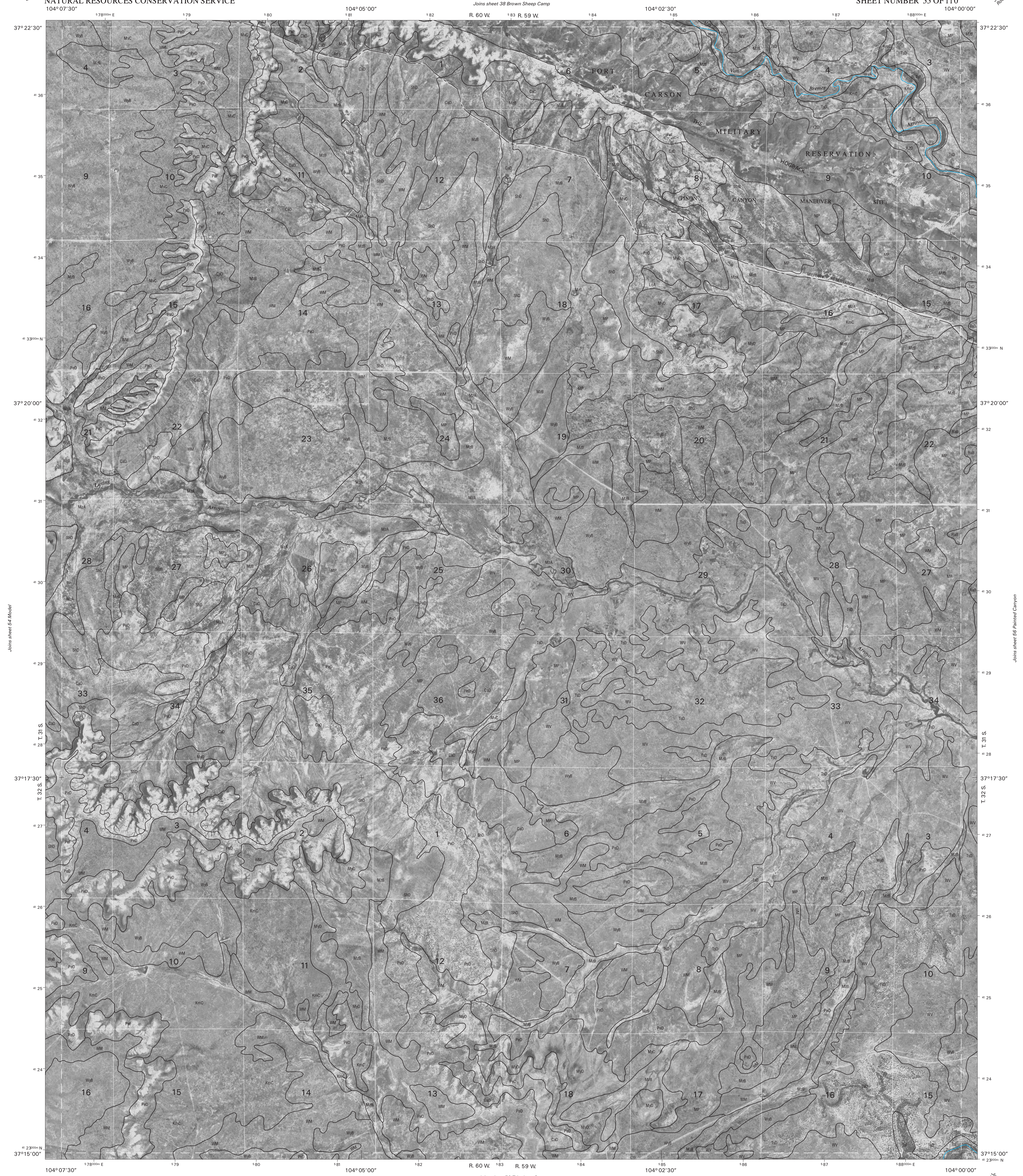


Joins sheet 37  
Tyronne

Joins sheet 39  
Rock Crossing

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
LAMBING SPRING QUADRANGLE  
SHEET NUMBER 55 OF 110



Joins sheet 54 Model

Joins sheet 56 Painted Canyon

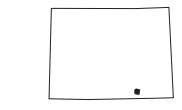
Joins sheet 72  
Patterson Crossing

Joins sheet 74  
Tremontina Canyon

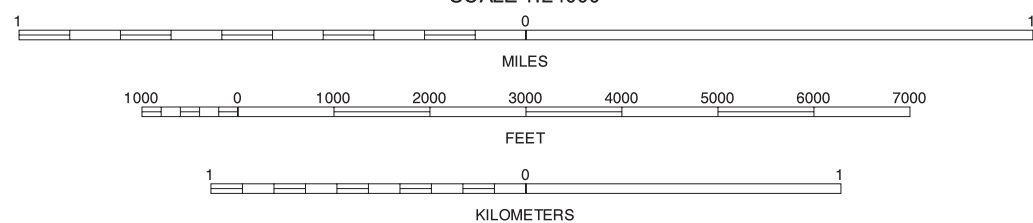
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



SCALE 1:24000

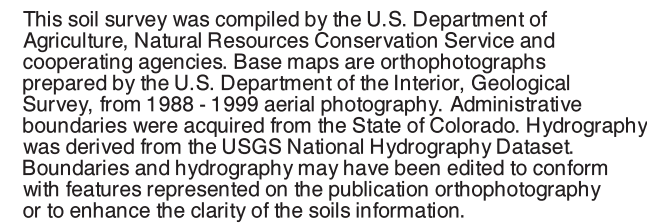
37	38	39	37 TYRONE
			38 BROWN SHEEP CAMP
			39 ROCK CROSSING
54		56	54 MODEL
			56 PAINTED CANYON
			72 PATTERSON CROSSING
			73 TRINCHERA CAVE
72	73	74	74 TREMONTINA CANYON

INDEX TO ADJOINING 7.5 MAPS

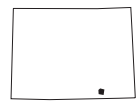
LAMBING SPRING, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 55 OF 110

Soil map delineations extending beyond the dashed white quadrangle neeline are for reference only and are included on adjacent map sheets.

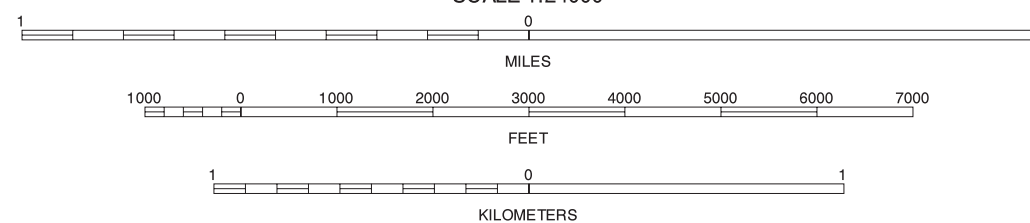




NORTH



QUADRANGLE LOCATION



38	39	40	38 BROWN SHEEP CAMP
			39 ROCK CROSSING
			40 DOSS CANYON NORTH
55		57	55 LAMBING SPRING
			57 DOSS CANYON SOUTH
			73 TRINCHERA CAVE
73	74	75	74 TREMENTINA CANYON
			75 BOX RANCH

INDEX TO ADJOINING 7.5 MAPS

PAINTED CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 56 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



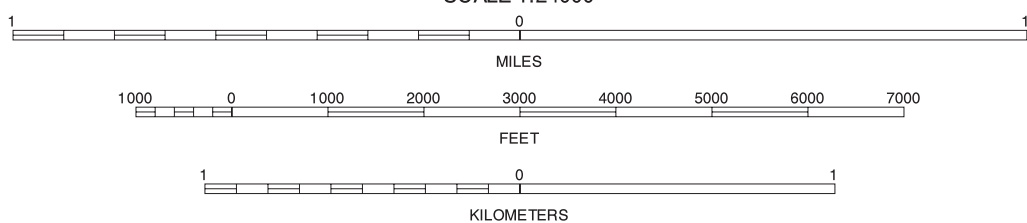


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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION



39	40	41
56	57	58
74	75	76

INDEX TO ADJOINING 7.5 MAPS

DOSS CANYON SOUTH, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 57 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

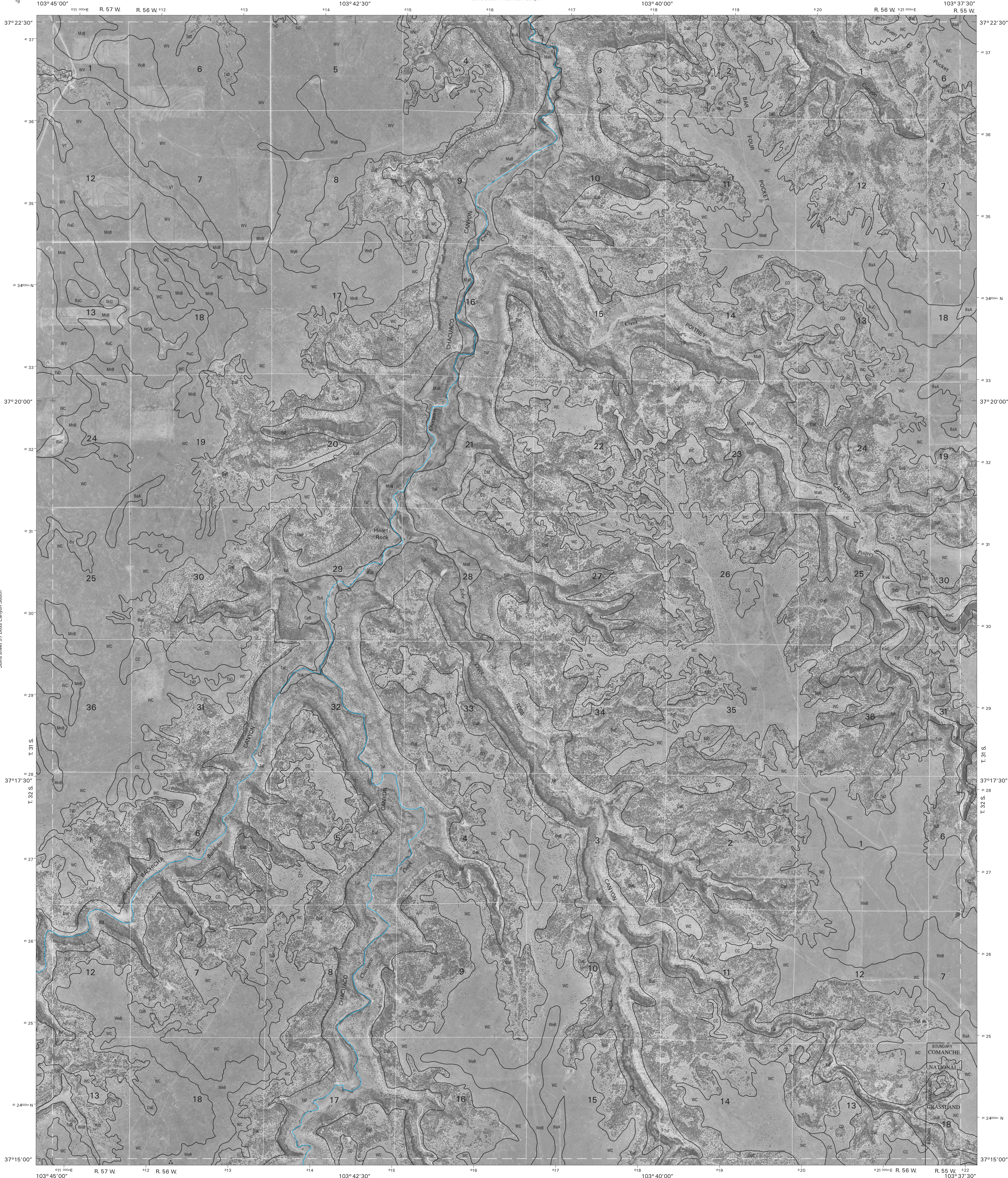


Joins sheet 40  
Doss Canyon North

Joins sheet 42  
Plum Canyon

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
HUMBAR SPRING QUADRANGLE  
SHEET NUMBER 58 OF 110



Joins sheet 57 Doss Canyon South

Joins sheet 59 Villagegreen

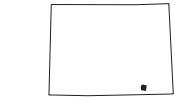
Joins sheet 75  
Box Ranch

Joins sheet 77  
Tope

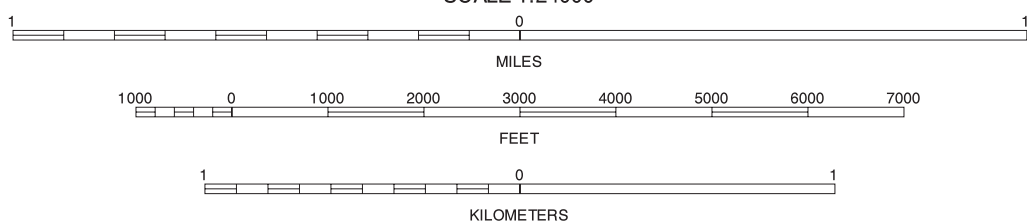
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



40	41	42	40 DOSS CANYON NORTH
41		42	41 JOHNSON CANYON
42		43	42 PLUM CANYON
57		58	57 DOSS CANYON SOUTH
		59	58 VILLEGREEN
		60	59 BOX RANCH
		61	60 MINERS PEAK
		62	61 TOPE

INDEX TO ADJOINING 7.5 MAPS

HUMBAR SPRING, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 58 OF 110

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.



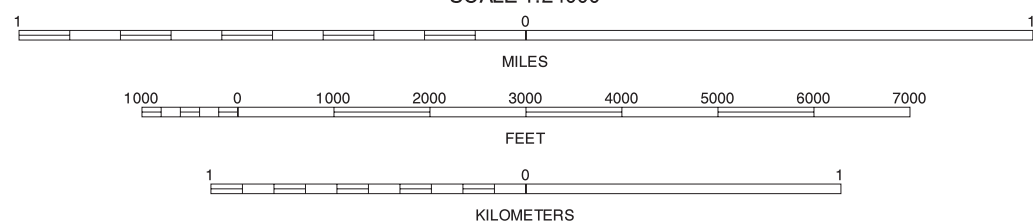


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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION



41	42	43
58	60	
76	77	78

INDEX TO ADJOINING 7.5 MAPS

VILLEGREEN, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 59 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.







UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

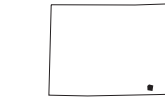
LAS ANIMAS COUNTY AREA, COLORADO  
KIM NORTH QUADRANGLE  
SHEET NUMBER 61 OF 110



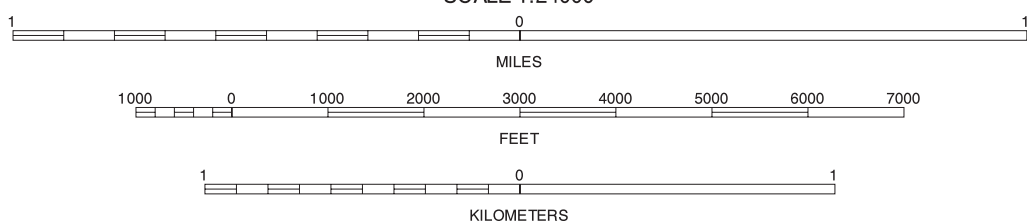
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



43	44	45
60	61	62
78	79	80

INDEX TO ADJOINING 7.5 MAPS

43 ICEHOUSE CANYON  
44 ROBBERS ROOST CANYON  
45 BUCK CANYON  
60 CHERRY CANYON  
62 ANDWIX  
78 DALEROSE MESA  
79 KIM SOUTH  
80 PINTADA CREEK

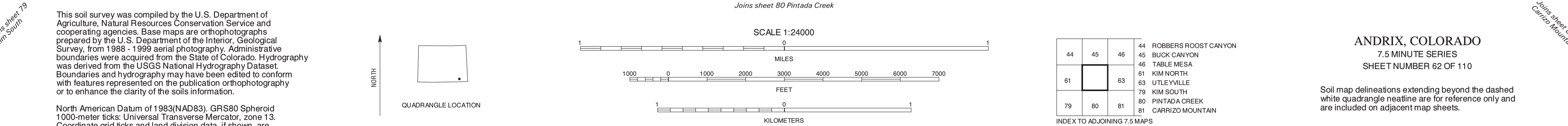
KIM NORTH, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 61 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



LAS ANIMAS COUNTY AREA, COLORADO  
ANDRIX QUADRANGLE  
SHEET NUMBER 62 OF 110

*Joins sheet 80 Pintada Creek*



North American Datum of 1983 (NAD83). GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13  
Coordinate grid ticks and land division data, if shown, are  
approximately positioned. Digital data are available for  
this quadrangle.

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



Joins sheet 45  
BUCK CANYON

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NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
UTLEYVILLE QUADRANGLE  
SHEET NUMBER 63 OF 110

Joins sheet 46 Table Mesa



Joins sheet 80  
PINTADA CREEK

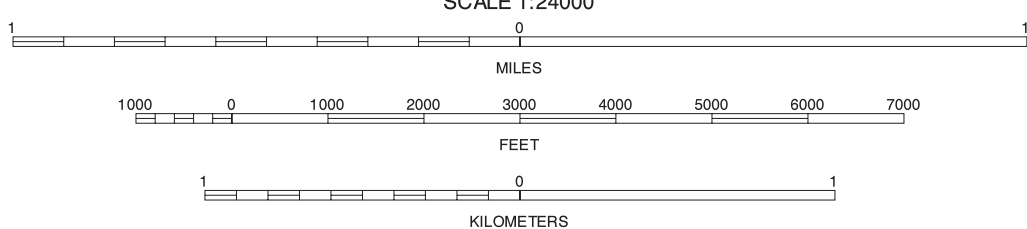
Joins sheet 81 Carrizo Mountain

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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

↑  
NUTL

QUADRANGLE LOCATION



45	46	45 BUCK CANYON
62	62	62 ANDRIX
80	81	80 PINTADA CREEK
		81 CARRIZO MOUNTAIN

INDEX TO ADJOINING 7.5 MAPS

UTLEYVILLE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 63 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartime are for reference only and are included on adjacent map sheets.





Join sheet 65 Stonewall

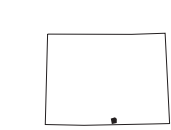
Join sheet 82 Culebra Peak

Join sheet 83  
Torres

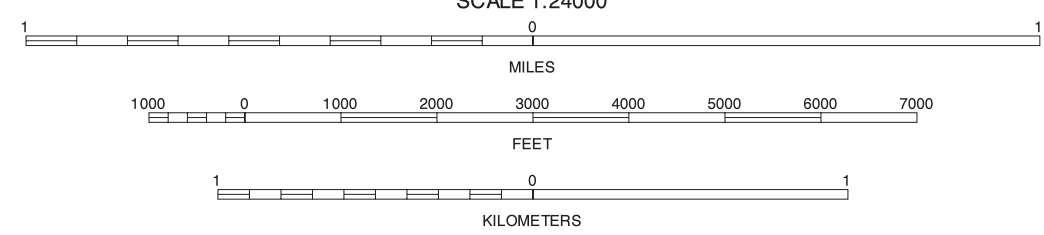
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North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



47	47
65	65
82	83

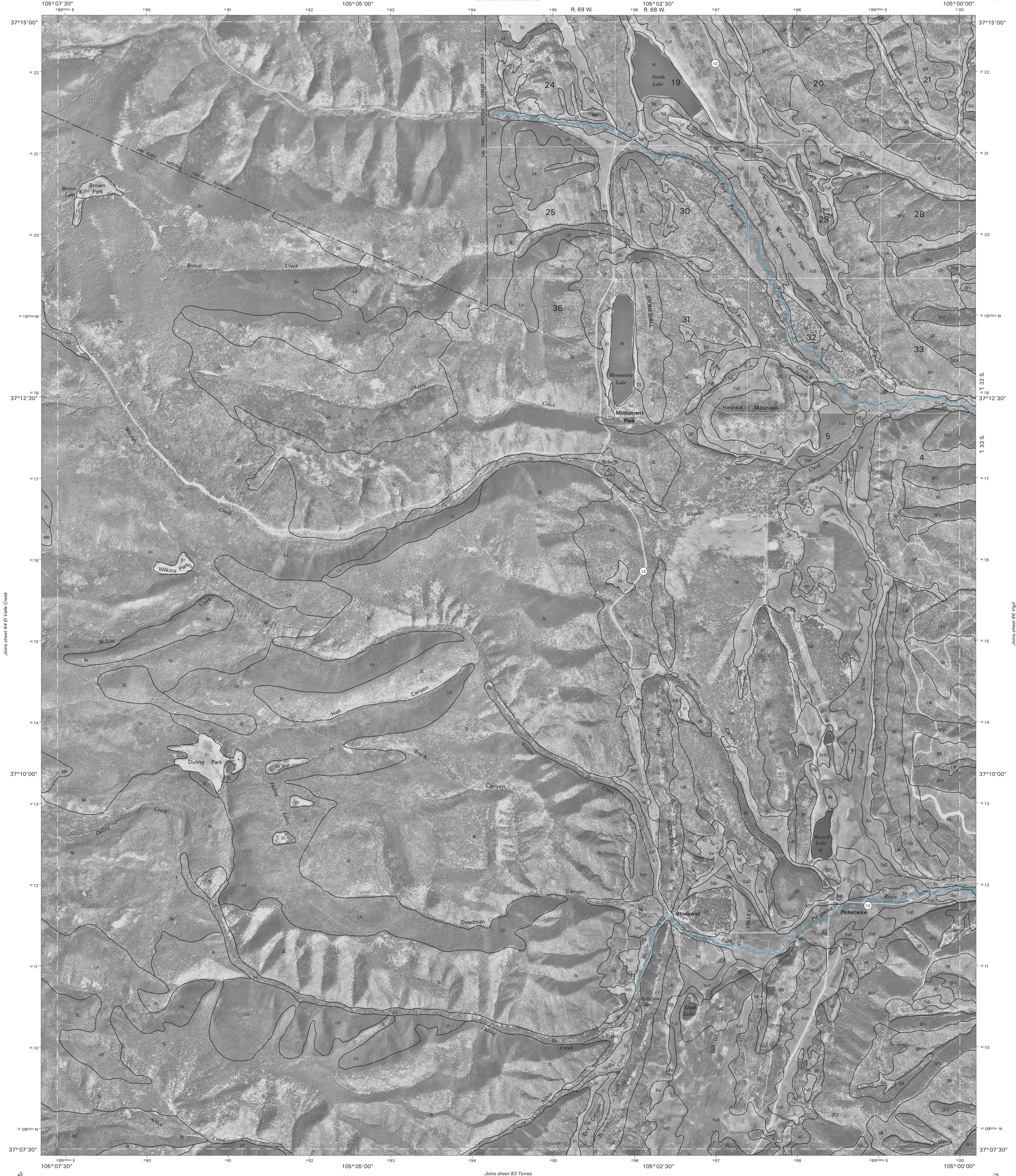
47 CUCHARAS PASS  
65 STONEWALL  
82 CULEBRA PEAK  
83 TORRES

INDEX TO ADJOINING 7.5 MAPS

EL VALLE CREEK, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 64 OF 110

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.





Joins sheet 82  
Culebra Peak

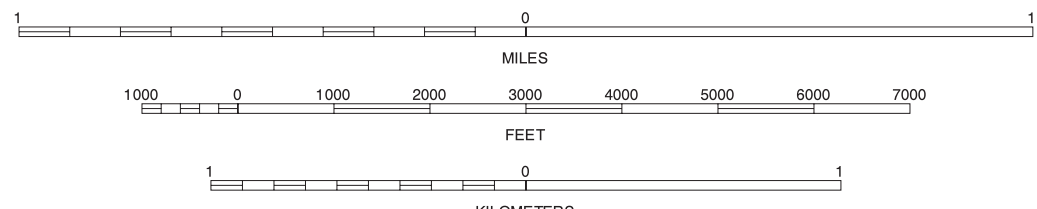
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



Joins sheet 83 Torres

47	48	47 CUCHARAS PASS
48	49	48 HERLICK CANYON
64	65	64 EL VALLE CREEK
65	66	65 VICI
82	83	82 CULEBRA PEAK
83	84	83 TORRES
84	85	84 TERCIO

INDEX TO ADJOINING 7.5 MAPS

STONEWALL, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 65 OF 110

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.

Joins sheet 84  
Torres



Joins sheet 4  
Gulnare

Joins sheet 83  
Torres

North American Datum of 1983 (NAD83). GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are  
approximately positioned. Digital data are available for  
this quadrangle.

QUADRANGLE LOCATION

47	48	49	47	CUCARAS PASS
			48	HERLUCK CANYON
			49	GULNARE
65		67	65	STONEWALL
			67	WESTON
			83	TORRES
83	84	85	84	TERCIO
			85	LITTLE PINE CANYON

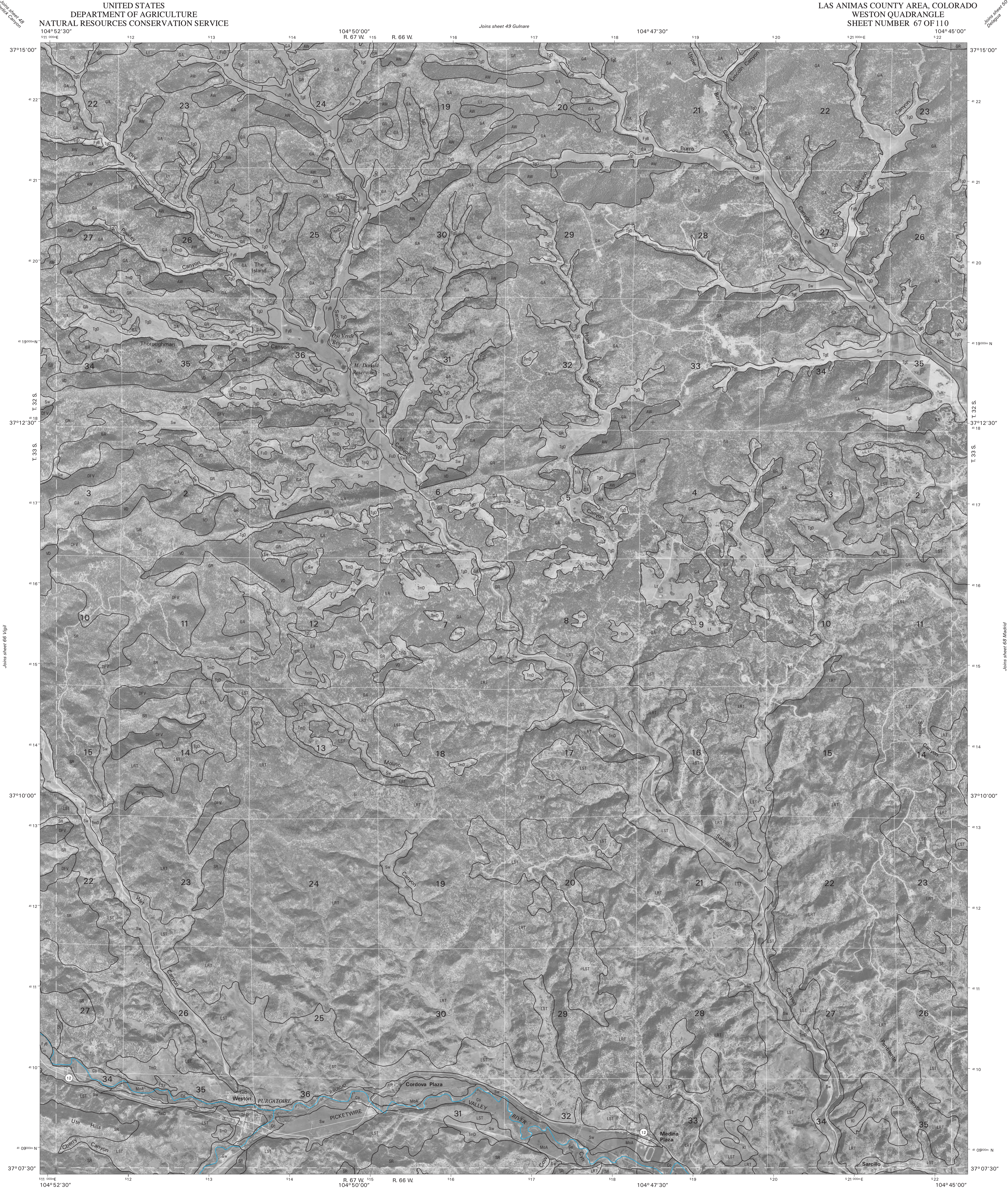
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet &  
Little Pine Cany.



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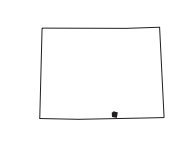
LAS ANIMAS COUNTY AREA, COLORADO  
WESTON QUADRANGLE  
SHEET NUMBER 67 OF 110



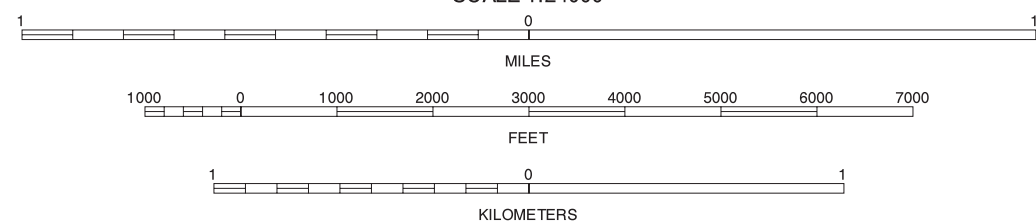
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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



48	49	50	48 HERLUCK CANYON
			49 GULNARE
			50 DELAGUA
66		68	66 VIGIL
			68 MADRID
84	85	86	84 TERCIO
			85 LITTLE PINE CANYON
			86 VALDEZ

INDEX TO ADJOINING 7.5 MINUTE MAPS

WESTON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 67 OF 110

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.



Joins sheet 51  
Ludlow



NORTH

SCALE 1:24000

SCALE 1:24000

A horizontal number line with a single tick mark labeled '0'.

MILES

A horizontal number line with arrows at both ends. It has three major tick marks labeled 0, 3000, and 4000. A smaller tick mark is located halfway between 3000 and 4000, representing 3500.

FEET

KILOMETERS

49	50	51	49 GULNARE
			50 DELAGUA
			51 LUDLOW
67		69	67 WESTON
			69 TRINIDAD WEST
			85 LITTLE PINE CANYON
85	86	87	86 VALDEZ
			87 STARKVILLE

INDEX TO ADJOINING 7.5 MAPS

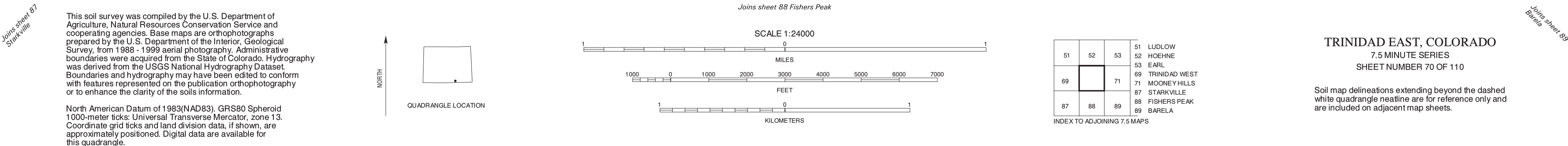
MADRID, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 68 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.









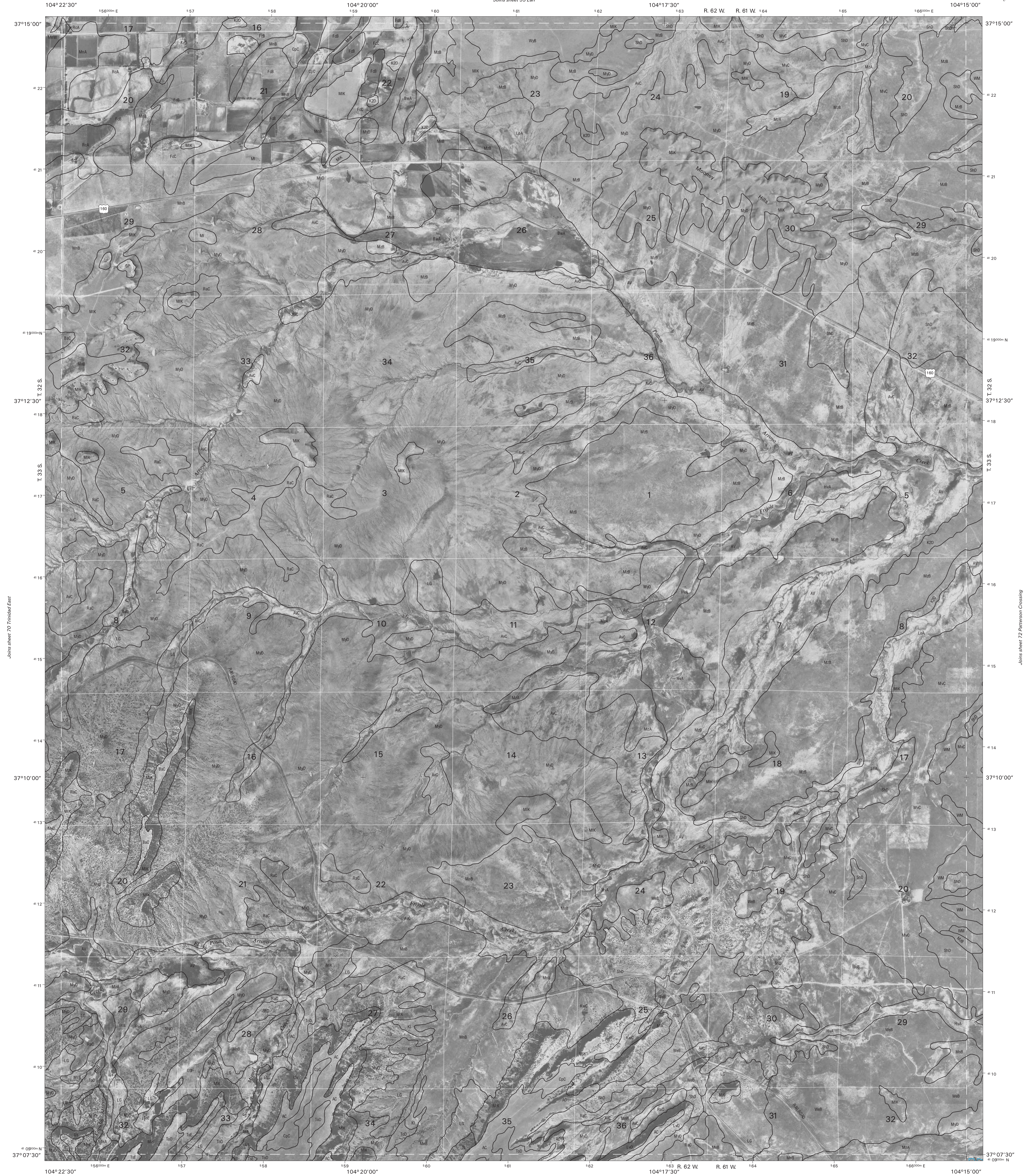


Joins sheet 52  
Trinidad

Joins sheet 54  
Model

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NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
MOONEY HILLS QUADRANGLE  
SHEET NUMBER 71 OF 110



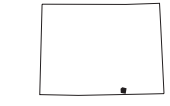
Joins sheet 68  
Fisher Peak

Joins sheet 60  
Aberia

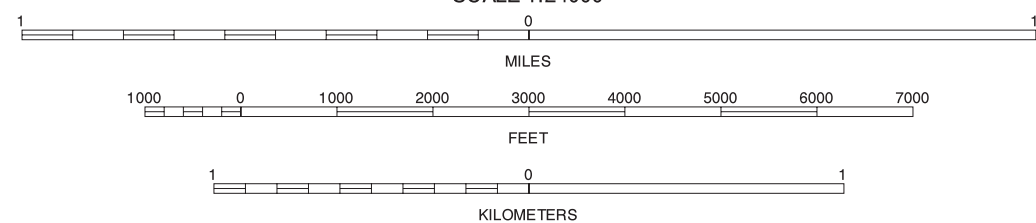
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



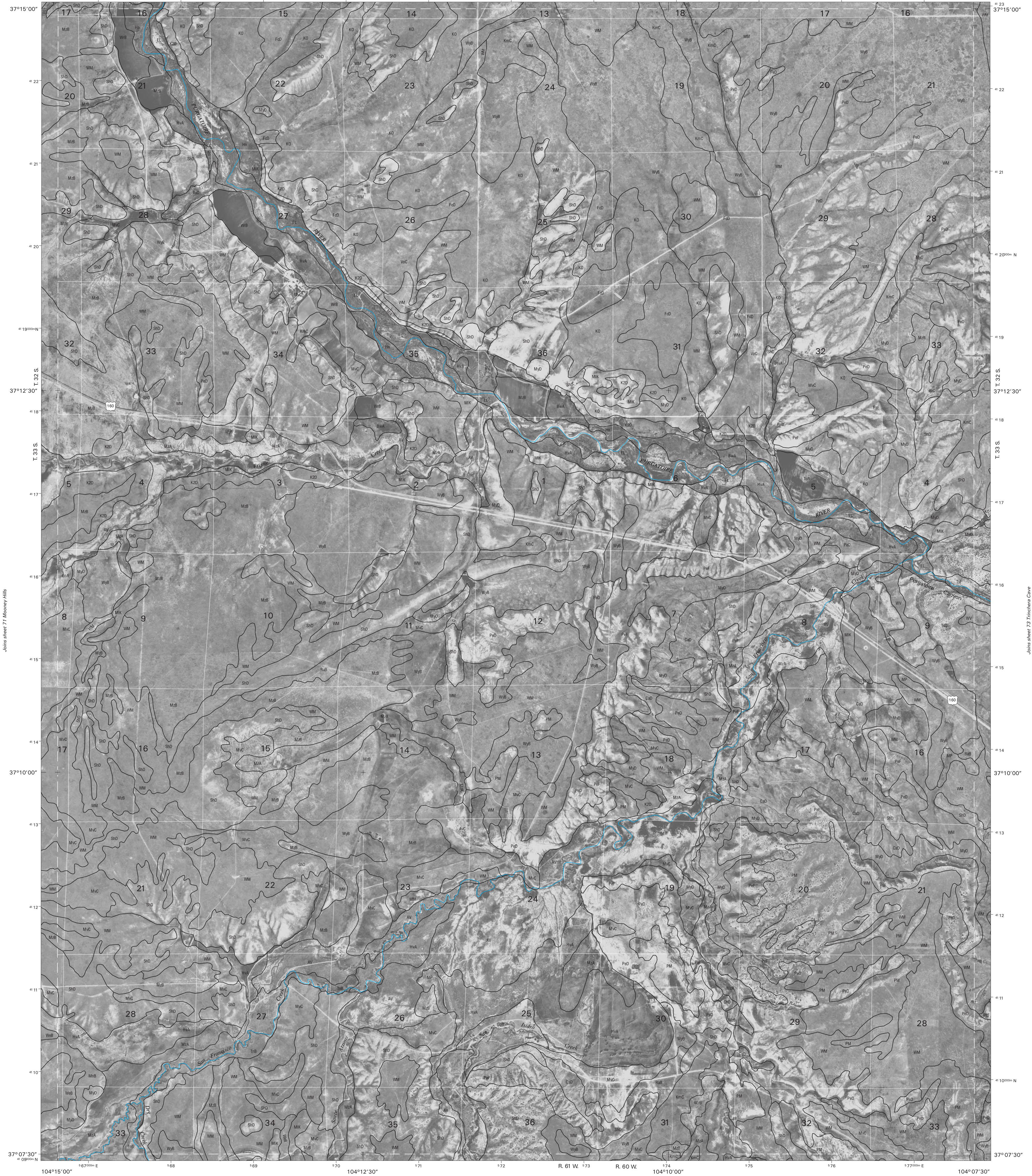
52	53	54	52 HOEHNE
			53 EARL
			54 MODEL
70		72	70 TRINIDAD EAST
			72 PATTERSON CROSSING
			88 FISHERS PEAK
88	89	90	89 BARELA
			90 ABEYTA

INDEX TO ADJOINING 7.5 MINUTE MAPS

MOONEY HILLS, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 71 OF 110

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.





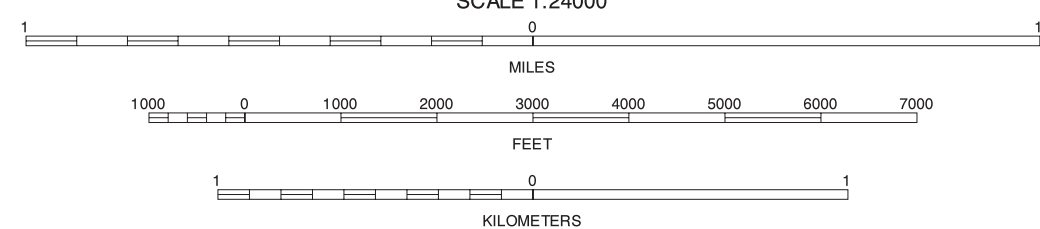
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North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



53	54	55
71	72	73
89	90	91

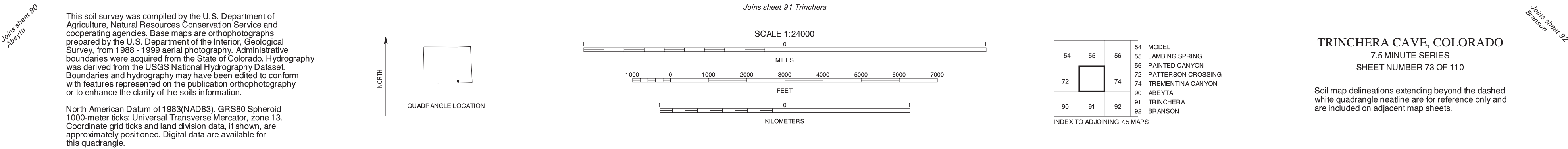
53 EARL  
54 MODEL  
55 LAMBING SPRING  
71 MOONEY HILLS  
72 TRINCHERA CAVE  
73 BARELA  
89 ABEYTA  
90 TRINCHERA  
91

INDEX TO ADJOINING 7.5 MAPS

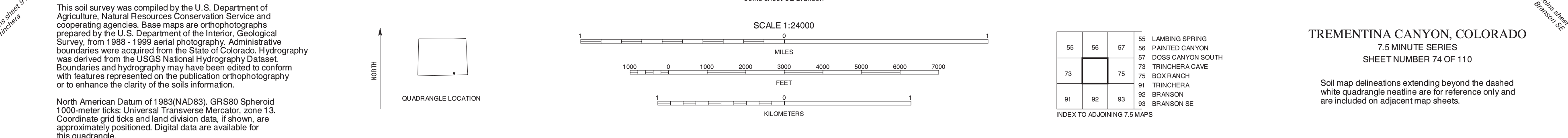
PATTERSON CROSSING, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 72 OF 110

Soil map delineations extending beyond the dashed white quadrangle neoline are for reference only and are included on adjacent map sheets.

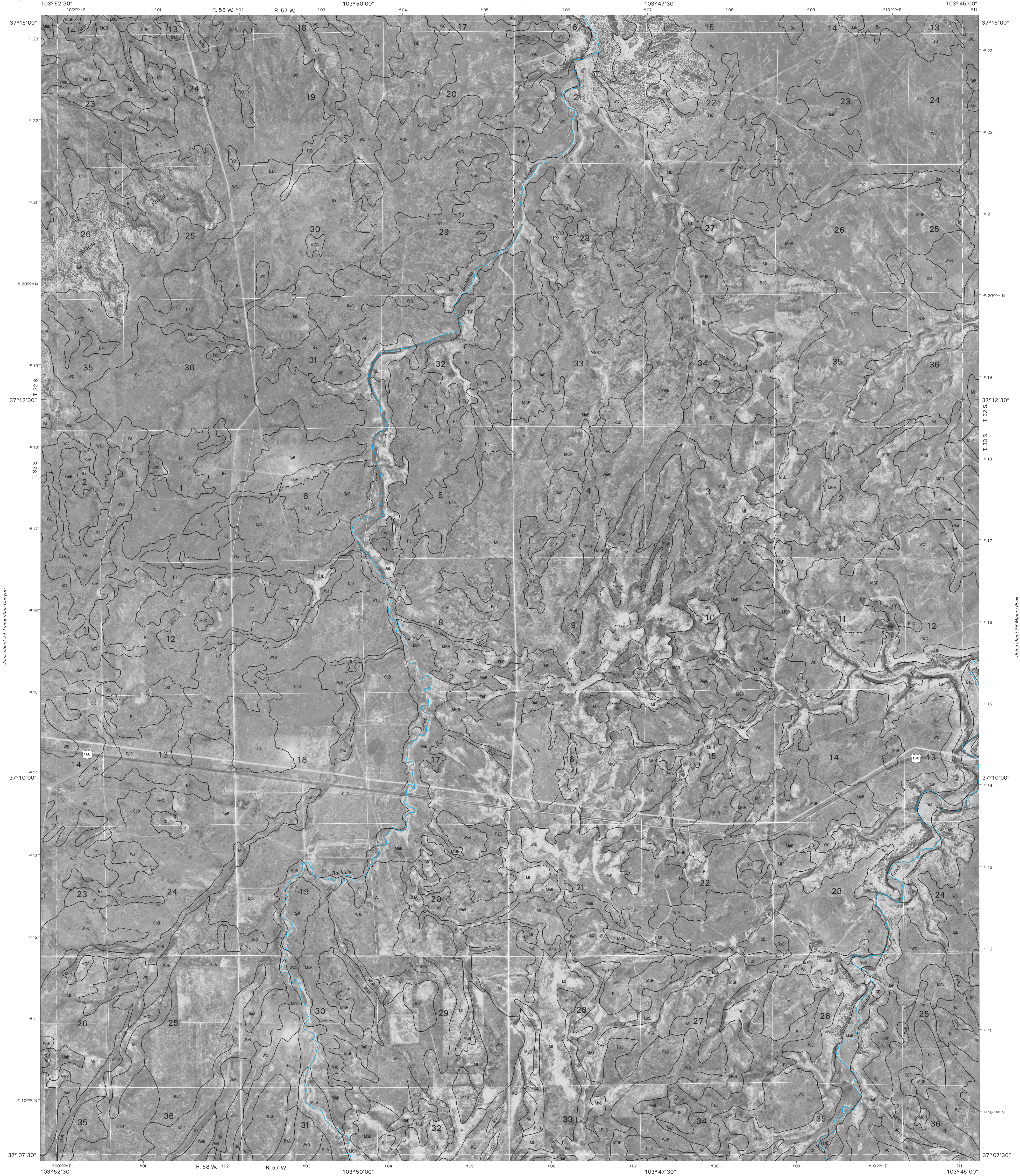






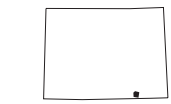




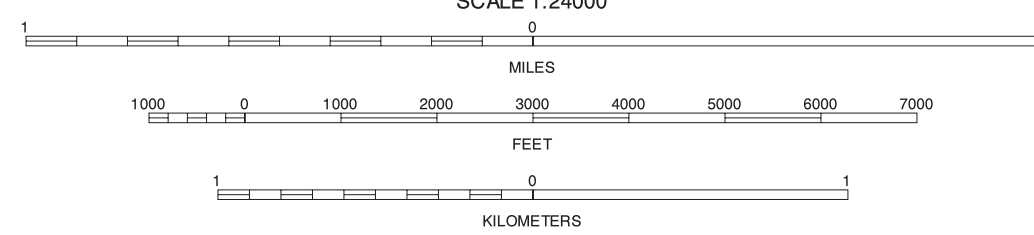


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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



56	57	58
74		76
92	93	94

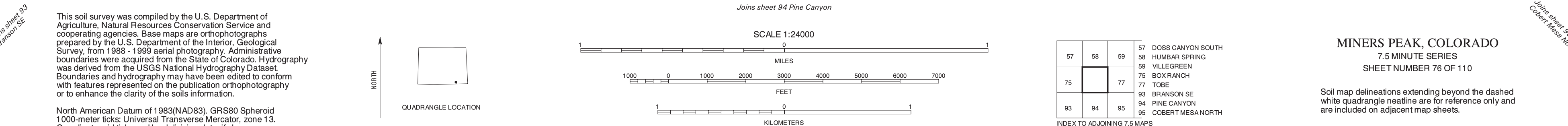
56 PAINTED CANYON  
57 DOBS CANYON SOUTH  
58 HUMBAR SPRING  
74 TREMENTINA CANYON  
76 MINNERS PEAK  
92 BRANSON  
93 BRANSON SE  
94 PINE CANYON

INDEX TO ADJOINING 7.5 MAPS

BOX RANCH, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 75 OF 110

Soil map delineations extending beyond the dashed white quadrangle nealtine are for reference only and are included on adjacent map sheets.



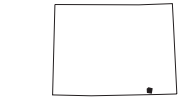




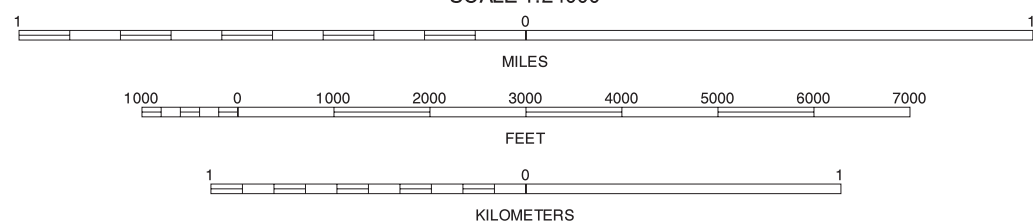


This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1988 - 1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION



58	59	60
76		78
94	95	96

58 HUMBAR SPRING  
59 VILLEGREEN  
60 CHERRY CANYON  
76 MINERS PEAK  
78 DALE ROSE MESA  
94 PINE CANYON  
95 COBERT MESA NORTH  
96 JESUS CANYON

TOBE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 77 OF 110

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.

INDEX TO ADJOINING 7.5 MAPS



Joins sheet 59  
Village Green

Joins sheet 61  
Kim North

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
DALEROSE MESA QUADRANGLE  
SHEET NUMBER 78 OF 110



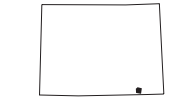
Joins sheet 58  
Cobert Mesa North

Joins sheet 67  
Dennis Canyon

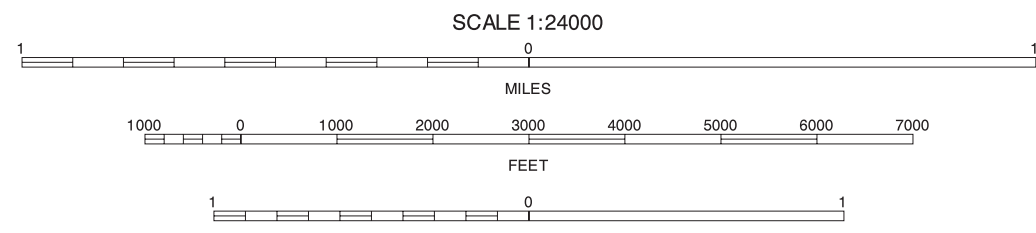
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



SCALE 1:24000

KILOMETERS

59	60	61
77		79
95	96	97

INDEX TO ADJOINING 7.5 MAPS

- 59 VILLEGREEN
- 60 CHERRY CANYON
- 61 KIM NORTH
- 77 TOBE
- 79 KIM SOUTH
- 95 COBERT MESA NORTH
- 96 JESUS CANYON
- 97 DENNIS CANYON

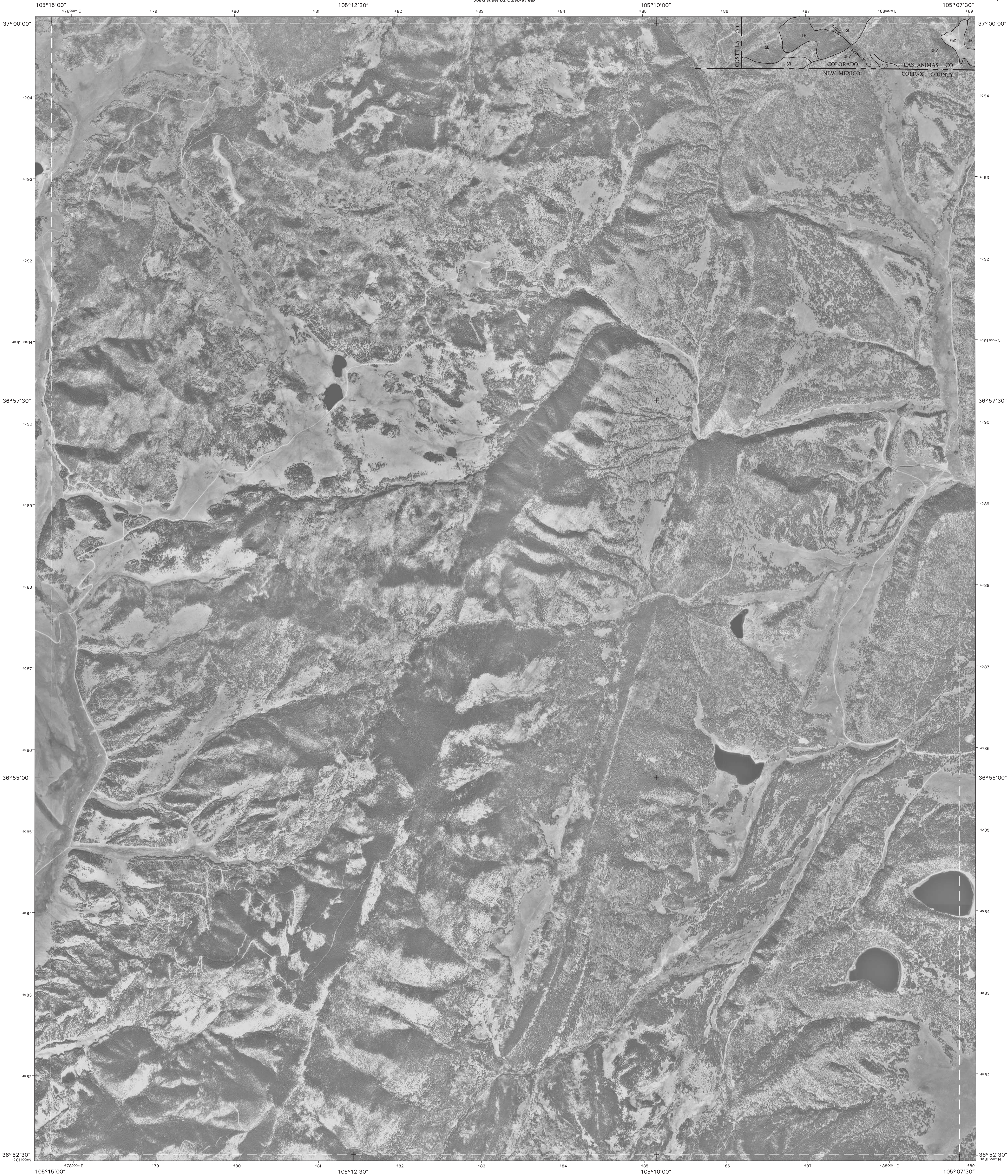
DALEROSE MESA, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 78 OF 110

Soil map delineations extending beyond the dashed white quadrangle neckline are for reference only and are included on adjacent map sheets.



Joins sheet 82 Culebra Peak

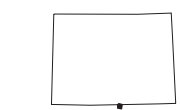
Joins sheet 83  
Torres



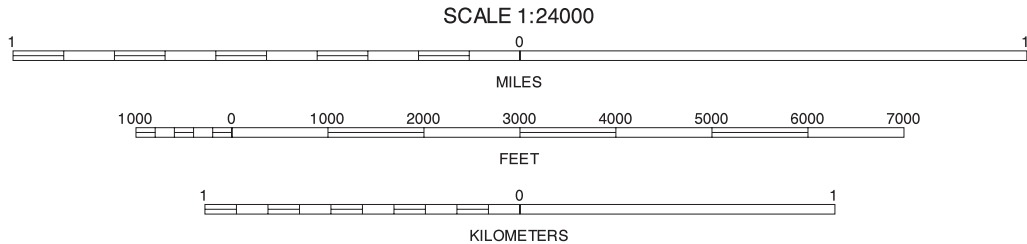
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey, from 1968 - 1999 aerial photography. Administrative boundaries were acquired from the State of Colorado. Hydrography was derived from the USGS National Hydrography Dataset. Boundaries and hydrography may have been edited to conform with features represented on the publication orthophotography or to enhance the clarity of the soils information.

North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



	82	83	82 CULEBRA PEAK
			83 TORRES
		101	101 VERMEJO PARK

INDEX TO ADJOINING 7.5 MAPS

THE WALL, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 100 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

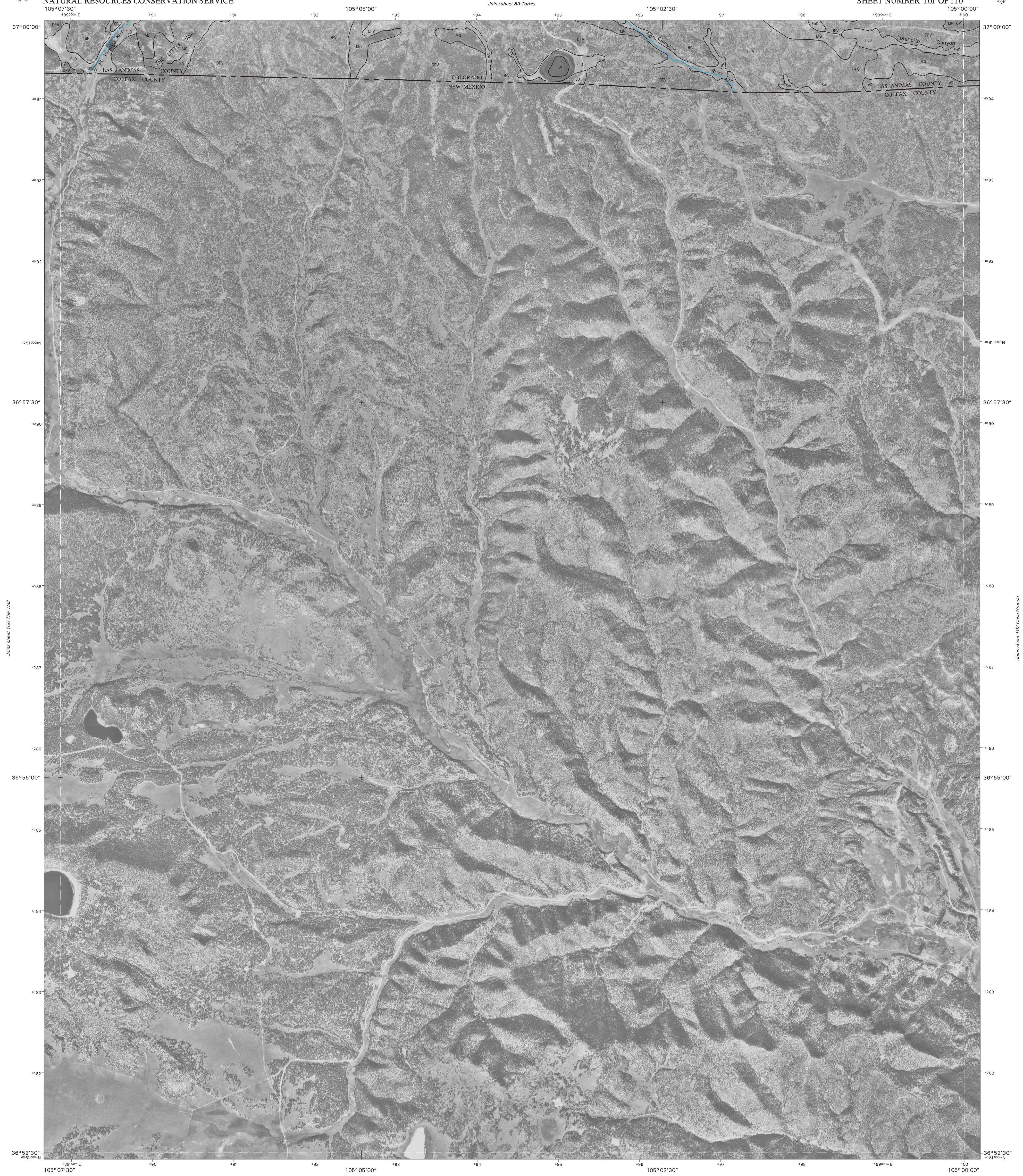


Joins sheet 82  
Culebra Peak

Joins sheet 84  
Torres

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE

LAS ANIMAS COUNTY AREA, COLORADO  
VERMEJO PARK QUADRANGLE  
SHEET NUMBER 101 OF 110



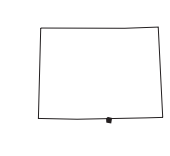
Joins sheet 100 The Wall

Joins sheet 102 Casa Grande

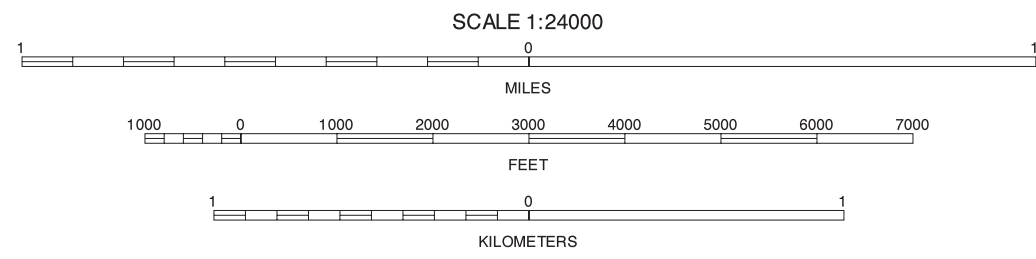
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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



82	83	84
100	101	102

INDEX TO ADJOINING 7.5 MAPS

VERMEJO PARK, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 101 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



NORTH



## INDEX TO ADJOINING 7.5 MAPS

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

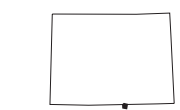




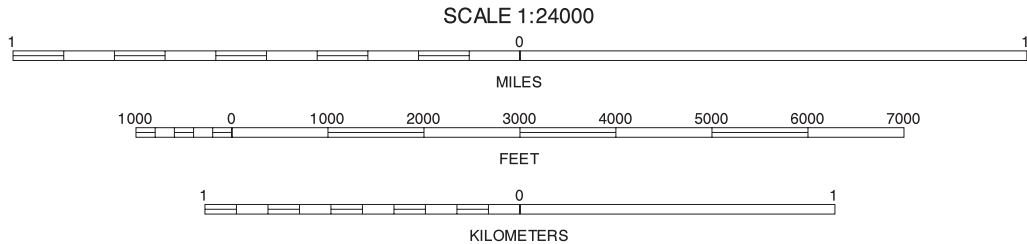
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North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



84	85	86	84 TERCIO
			85 LITTLE PINE CANYON
			86 VALDEZ
102	103	104	102 CASA GRANDE
			104 MCWILLIAMS CANYON

INDEX TO ADJOINING 7.5 MAPS

CALIENTE CANYON NORTH, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 103 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

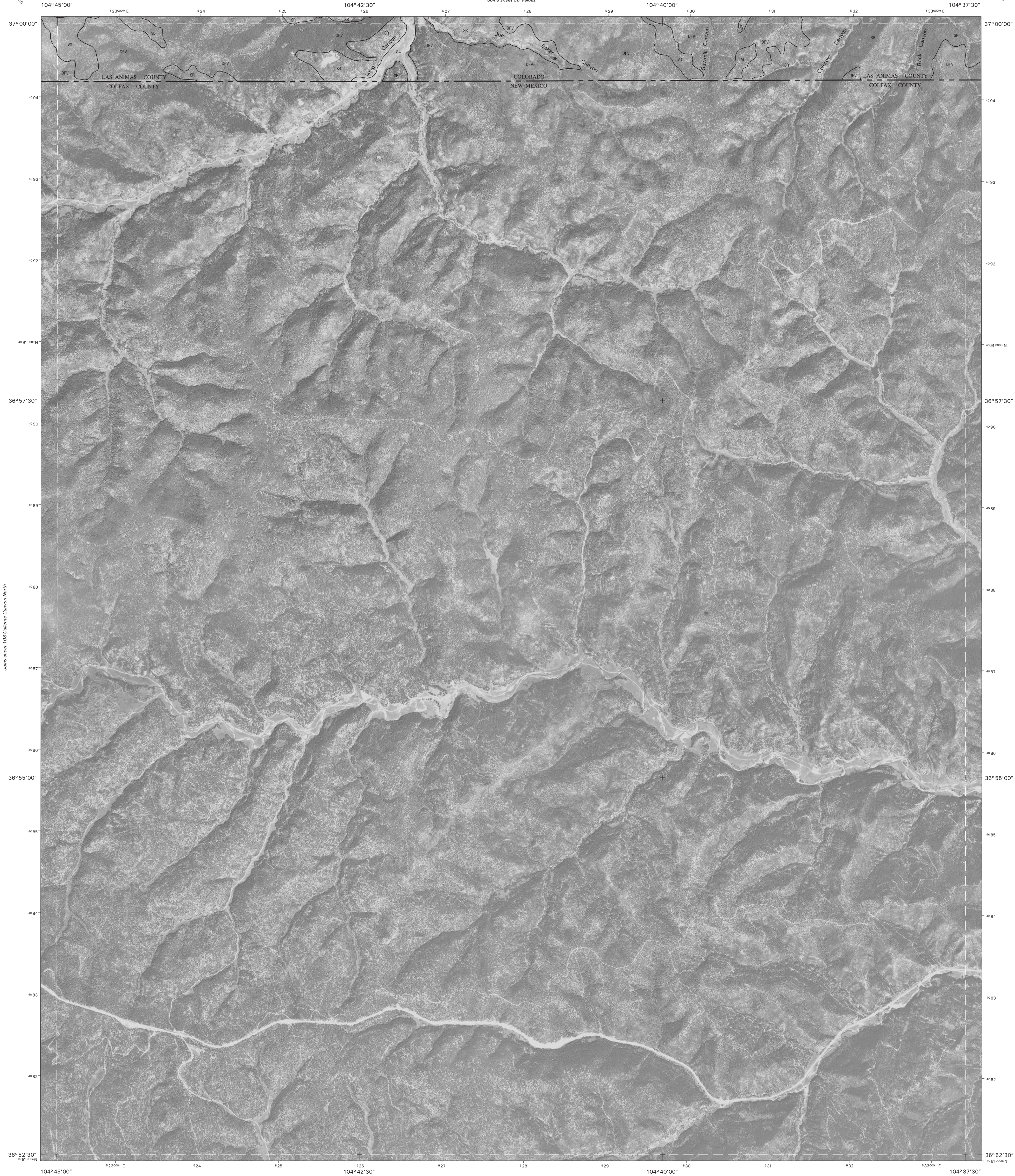


Joins sheet 85  
Little Pine Canyon

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
104° 45' 00"

LAS ANIMAS COUNTY AREA, COLORADO  
MCWILLIAMS CANYON QUADRANGLE  
SHEET NUMBER 104 OF 110

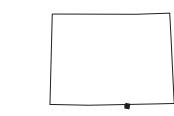
Joins sheet 87  
Starkville



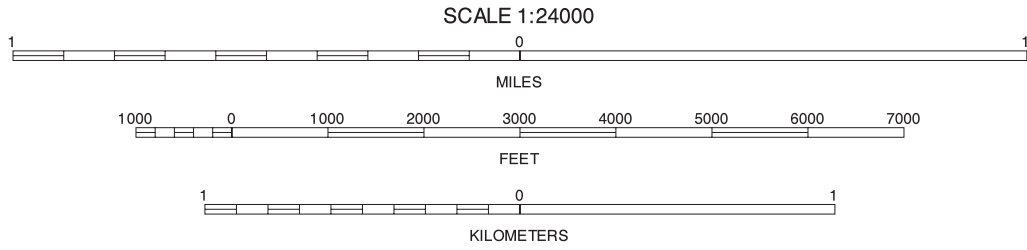
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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



85	86	87
103	104	105

INDEX TO ADJOINING 7.5 MAPS

MCWILLIAMS CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 104 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.



Joins sheet 86  
Valdez

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
NATURAL RESOURCES CONSERVATION SERVICE  
104° 37' 30"

LAS ANIMAS COUNTY AREA, COLORADO  
TIN PAN CANYON QUADRANGLE  
SHEET NUMBER 105 OF 110  
104° 30' 00"

Joins sheet 88  
Fishers Peak



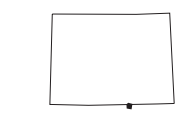
Joins sheet 104 McWilliams Canyon

Joins sheet 106 Raton

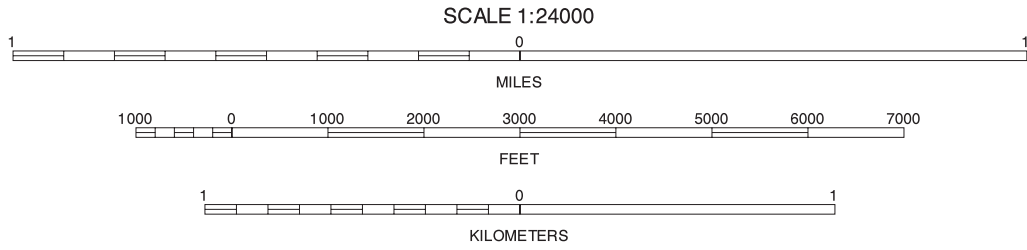
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



86	87	88	86 VALDEZ
			87 STARKVILLE
			88 FISHERS PEAK
104		106	104 MCWILLIAMS CANYON
			106 RATON

INDEX TO ADJOINING 7.5 MAPS

TIN PAN CANYON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 105 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

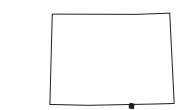




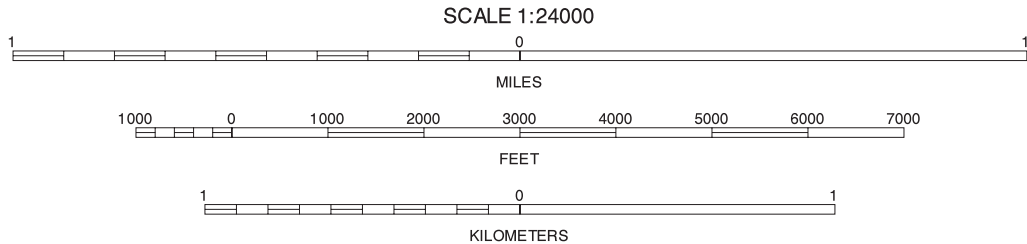
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North American Datum of 1983(NAD83). GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



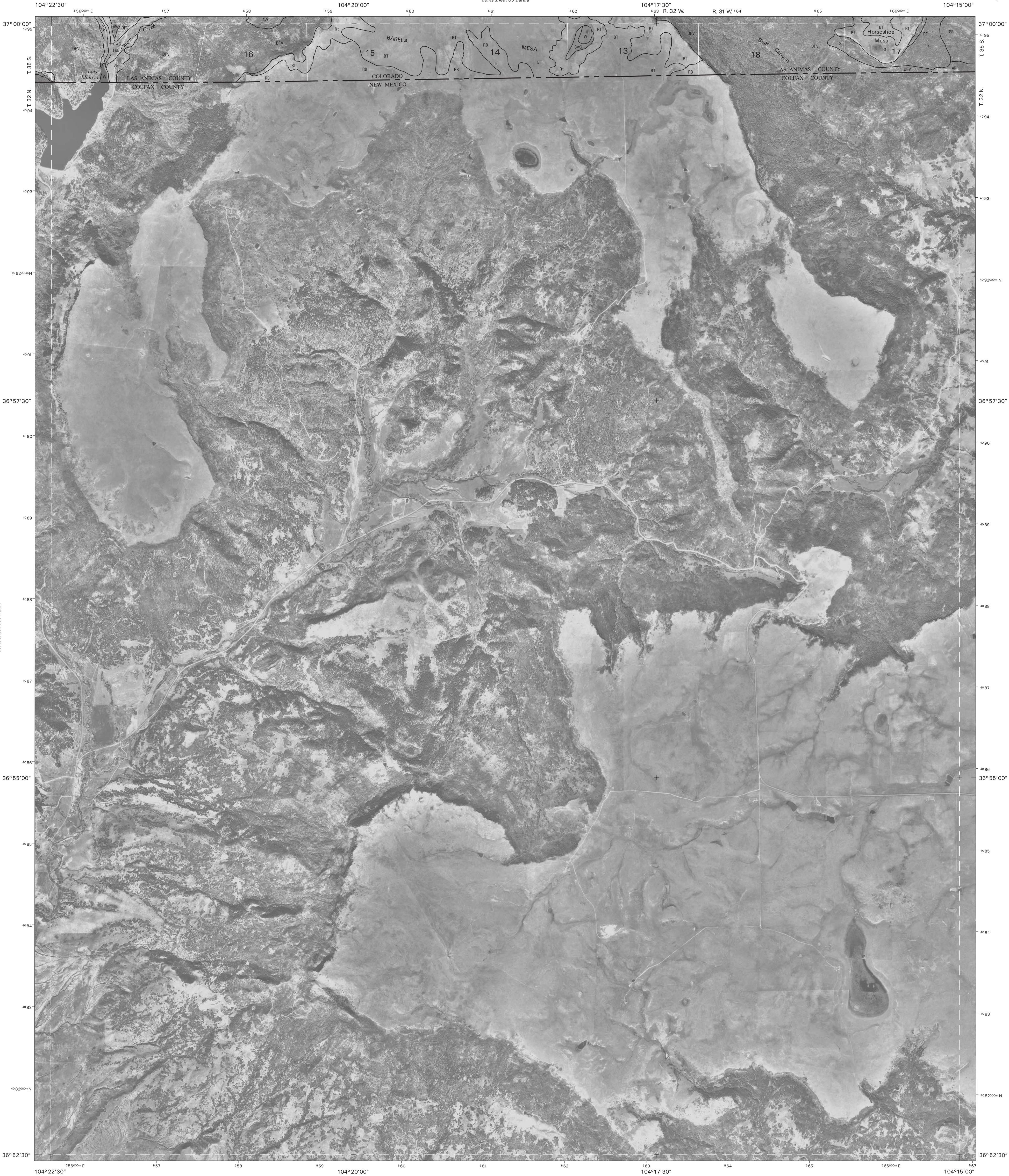
87	88	89	87 STARKVILLE
			88 FISHERS PEAK
			89 BARELA
105		107	105 TIN PAN CANYON
			107 YANKEE

INDEX TO ADJOINING 7.5 MAPS

RATON, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 106 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

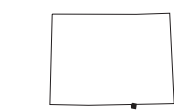




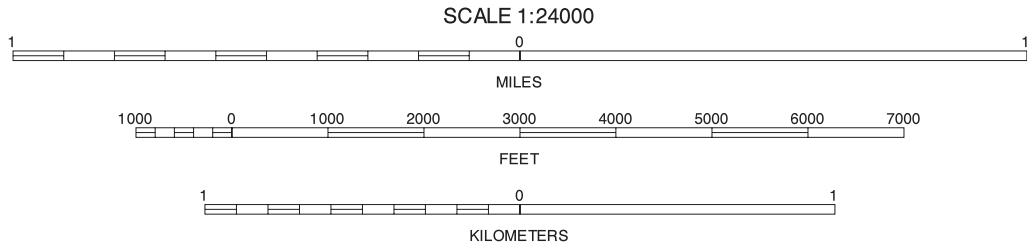
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North American Datum of 1983 (NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



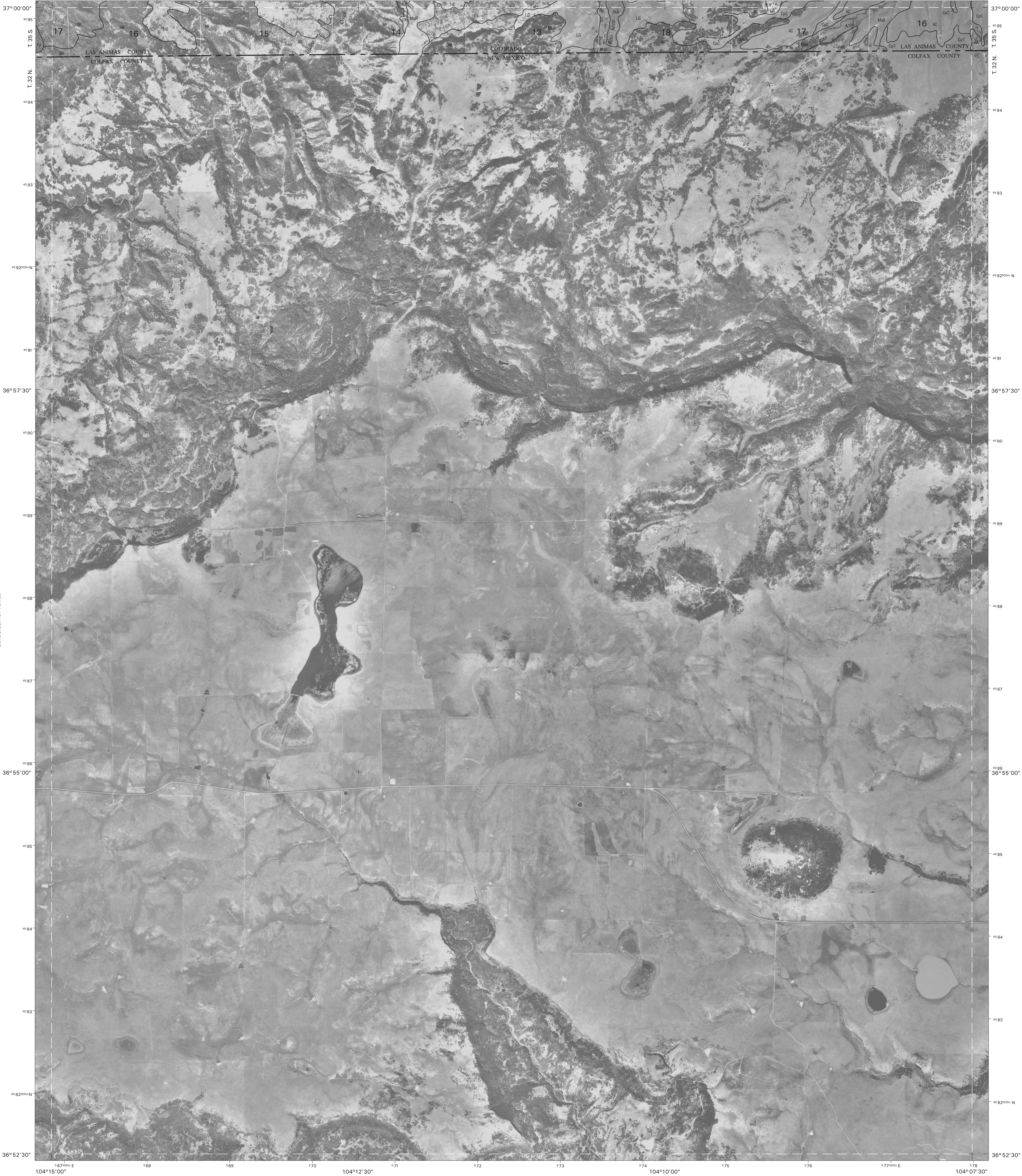
88	89	90	88 FISHERS PEAK
			89 BARELA
			90 ABEYTA
106		108	106 RATON
			108 DALE MOUNTAIN

INDEX TO ADJOINING 7.5 MAPS

YANKEE, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 107 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

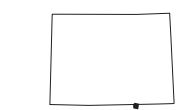




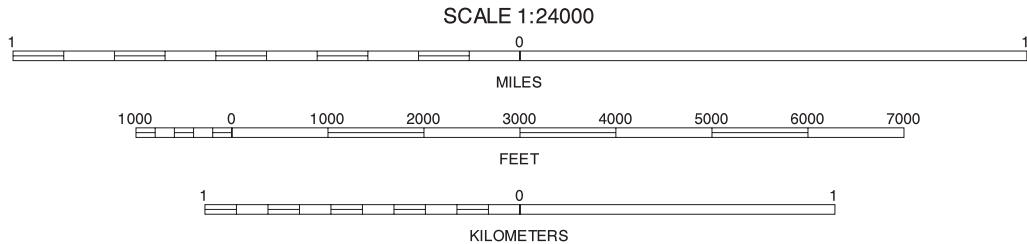
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North American Datum of 1983(NAD83), GRS80 Spheroid  
1000-meter ticks: Universal Transverse Mercator, zone 13.  
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



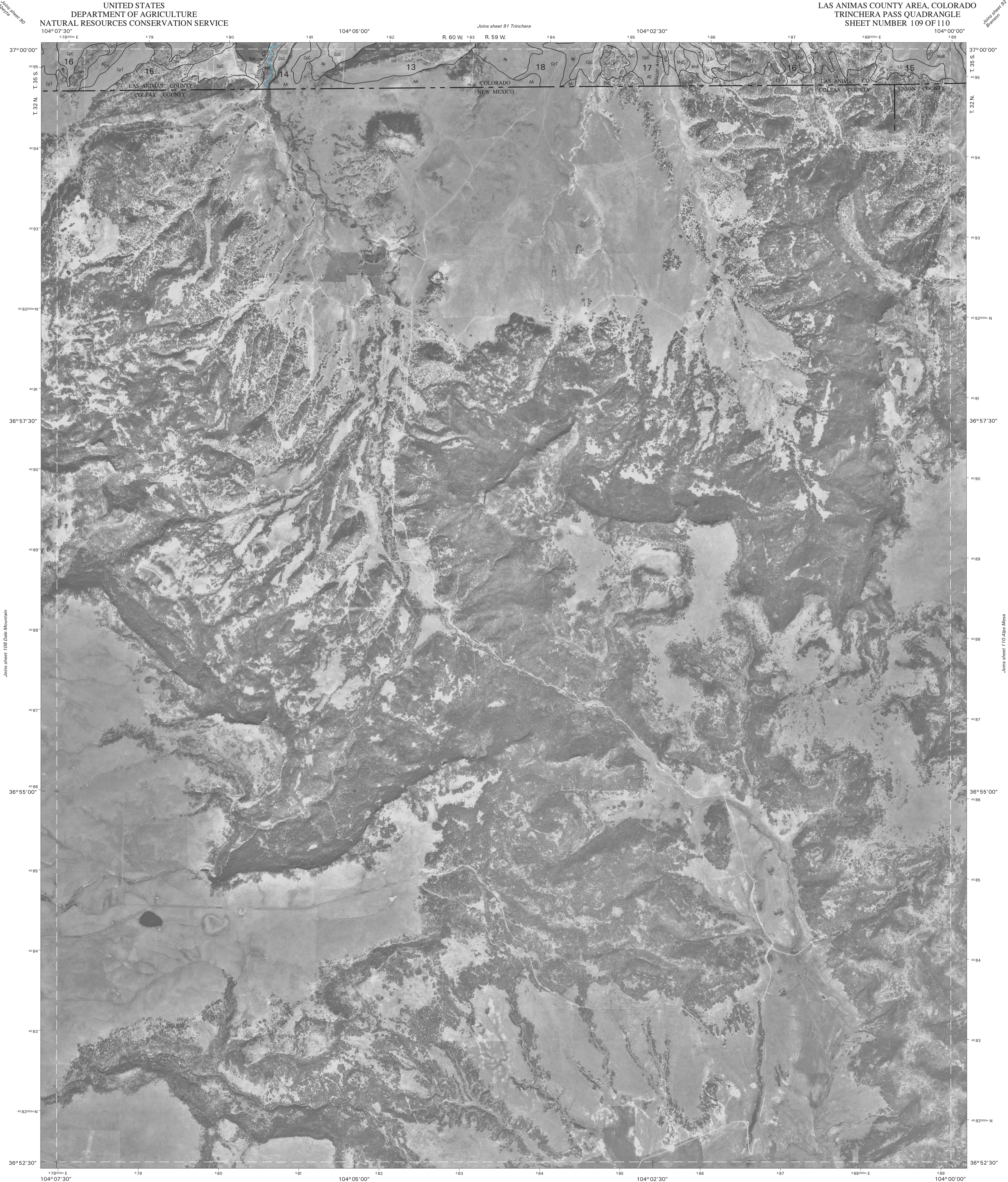
89	90	91	89 BARELA
			90 ABEYTA
			91 TRINCHERA
107		109	107 YANKEE
			109 TRINCHERA PASS

INDEX TO ADJOINING 7.5 MAPS

DALE MOUNTAIN, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 108 OF 110

Soil map delineations extending beyond the dashed white quadrangle neartine are for reference only and are included on adjacent map sheets.

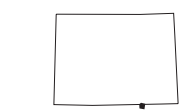




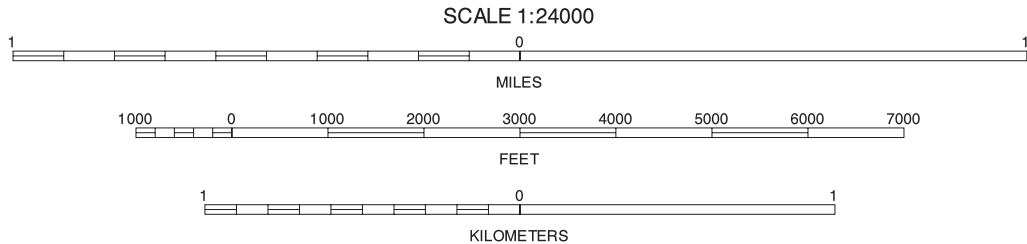
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North American Datum of 1983(NAD83), GRS80 Spheroid 1000-meter ticks Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



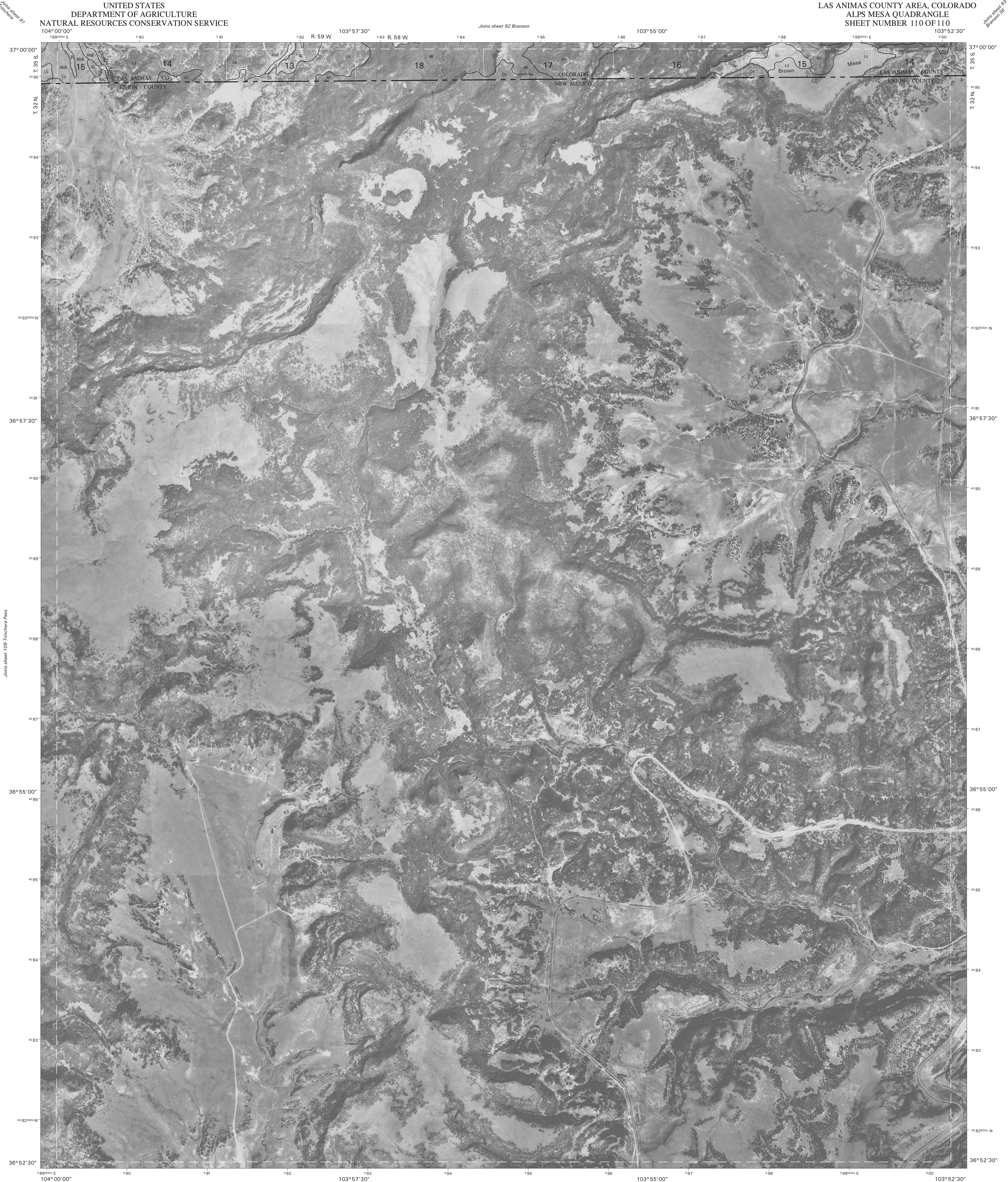
90	91	92
108	110	111

INDEX TO ADJOINING 7.5 MAPS

TRINCHERA PASS, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 109 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

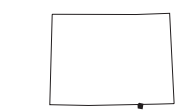




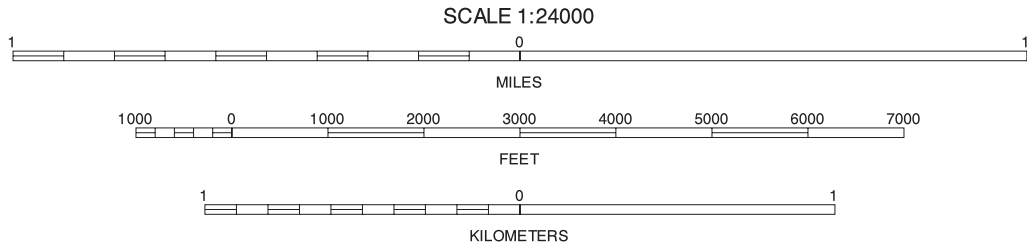
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North American Datum of 1983 (NAD83), GRS80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 13. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION



91	92	93
91	92	93
109		

INDEX TO ADJOINING 7.5 MAPS

ALPS MESA, COLORADO  
7.5 MINUTE SERIES  
SHEET NUMBER 110 OF 110

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.